

The United States MILLER

Published by
E. HARRISON CAWKER. { Vol. 18, No. 5. }

MILWAUKEE, MARCH, 1885.

{ Terms : \$1.00 a Year in Advance.
Single Copies, 10 Cents. }

RICHMOND MANUFACTURING CO., LOCKPORT, N. Y.,

MANUFACTURERS OF RICHMOND'S CELEBRATED

Warehouse Receiving Separator, Grain Separator
AND OAT EXTRACTOR

WHEAT SCOURERS,

—AND—

Wheat Brush Machines,

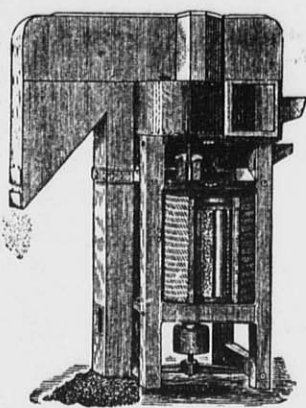
UPRIGHT AND HORIZONTAL BRAN DUSTERS,

CENTRIFUGAL FLOUR DRESSING MACHINES.

Thousands of these Machines are in successful operation,
both in this country and in Europe. Correspondence solicited.

SEND FOR DESCRIPTIVE CATALOGUE.

[Please mention this paper when you write.]



Adjustable Brush Smut Machine.

READ THIS!

WE HAVE THE BEST

Re-Grinding and Corrugating Machines

IN THE COUNTRY.

Millers say they would rather pay us **TEN DOLLARS**
per Roller than to have done elsewhere
FOR NOTHING. TRY US.

THE FILER & STOWELL CO., Limited,

CREAM CITY IRON WORKS,

Milwaukee, Wisconsin.

SUCCESSFUL FROM THE START

Office of MOUNT HOPE MILLS AND McLEANS STEAM ELEVATOR.

McLean, Ill., Dec. 13th, 1884.

MESSRS. EDW. P. ALLIS & CO., Milwaukee, Wis.

DEAR SIRS:—I cheerfully accept the New Roller Mill that you have built
in the place where the old buhrs and other machinery were taken out, and
must say that it is fully up to my expectations in every respect, in workman-
ship and quality of flour produced.

Respectfully Yours,

C. C. ALDRICH.

ODELL'S ROLLER MILL SYSTEM

Is now in successful operation in a large number of mills, both large and small, on hard and soft wheat, and is meeting with Unparalleled Success. All the mills now running
on this system are doing very fine and close work, and we are in receipt of the most flattering letters from millers. References and letters of introduction
to parties using the Odell Rolls and System, will be furnished on application to all who desire to investigate.

ODELL'S ROLLER MILL,

Invented and Patented by U. H. ODELL, the builder of several of the largest and
best Gradual Reduction Flour Mills in the country.

AN ESTABLISHED SUCCESS.

WE INVITE PARTICULAR ATTENTION TO THE FOLLOWING

POINTS OF SUPERIORITY

possessed by the Odell Roller Mill over all competitors, all of which are broadly covered by
patents, and cannot be used on any other machine.

1. It is driven entirely with belts, which are so arranged as to be equivalent to giving each
of the four rolls a separate driving-belt from the power shaft, thus obtaining a *positive*
differential motion which cannot be had with short belts.

2. It is the only Roller Mill in market which *can instantly be stopped without*
throwing off the driving-belt, or that has adequate tightener devices for taking up the
stretch of the driving-belts.

3. It is the only Roller Mill in which *one movement of a hand-lever spreads the*
rolls apart and shuts off the feed at the same time. The reverse movement of this
lever brings the rolls back again exactly into working position and *at the same time*
turns on the feed.

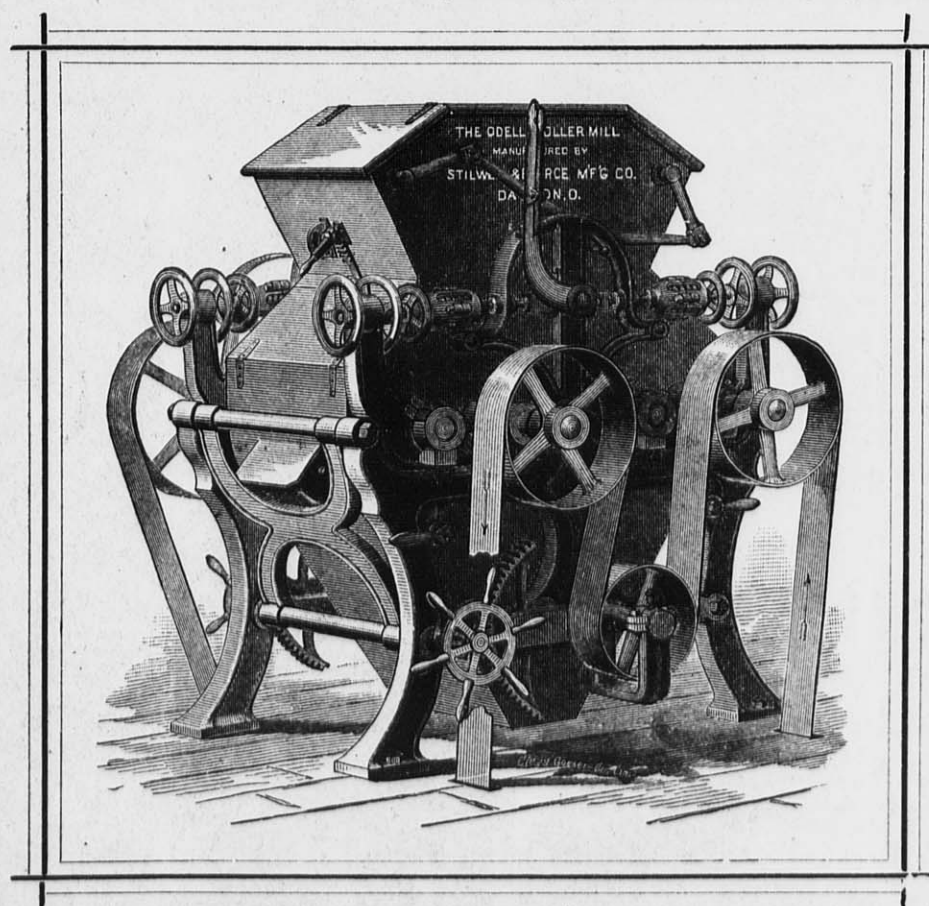
4. It is the only Roller Mill in which the movable roll-bearings may be adjusted to and
from the stationary roll-bearings *without disturbing the tension-spring*.

5. Our Corrugation is a decided advance over all others. It produces a more even granu-
lation, *more middlings of uniform shape and size, and cleans the bran better*.

We use none but the BEST ANSONIA ROLLS.

OUR CORRUGATION DIFFERS FROM ALL OTHERS, AND PRODUCES

LESS BREAK FLOUR and MIDDINGS of BETTER QUALITY.



Mill owners adopting our Roller Mills will have the benefit of Mr. Odell's advice, and long experience in arranging mills. Can furnish machines on Short Notice. For further
information, apply in person or by letter to the sole manufacturers,

STILWELL & BIERCE MANUFACTURING CO.,

Agents for Du Four's Bolting Cloth.

[Please mention this paper when you write to us.]

DAYTON, OHIO, U. S. A.

CONCLUSIVE PROOF

OF THE SUPERIORITY OF THE

GRAY NOISELESS ROLLER MILL

Is furnished by the fact that these celebrated machines will be used by Messrs. C. A. PILLSBURY & Co., in their new

PILLSBURY "B" MILL

All bidders for the work of constructing this immense mill being required to figure on using the Gray Roller Mills. The selection of these machines for the new "B" mill was the result of several years practical test in the other mills owned by the same firm in competition with various other roller mills, the decision being unanimous, that, in all particulars, for practical work in the mill, Gray's Noiseless Roller Mills were superior to all others.

We wish to assure our customers who may not wish to build 2000 barrel mills, but who wish to build mills of smaller capacity, that no matter what size mill they desire to build, or how small its capacity, the **GRAY ROLLER MILLS** are the best they can use, and we shall at all times furnish machines equal in every respect of material and workmanship to those which will be used in the new Pillsbury Mill.

EDW. P. ALLIS & CO.,

RELIANCE WORKS,

MILWAUKEE, WIS.

Sole Manufacturers of Gray's Patent Noiseless Roller Mills, adapted to mills of any desired capacity.

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ACCIDENTS IN MILLS AND THEIR PREVENTION.

Our German contemporary, "Die Muehle", has an article upon this subject, from which we translate the following: "Prevention is better than cure," is an old proverb, that will bear constant repetition in manufacturing establishments. A compilation of the causes which produce the largest number of accidents in flouring mills, may find a place here, together with the various methods employed to give the necessary protection to the employees. Of course any such attempt will be incomplete; if the task on hand related to safety appliances only and their construction, it would be comparatively easy; the difficulty lies in the fact that the protective measures must not in any way interfere with the successful operation of the plant; and whoever attempts to pass a judgment on the feasibility of certain protective measures, must have a thorough and practical knowledge of milling. The design of a plant will give sufficient indication to a man who possesses practical experience, to enable him to form an opinion about the dangers of its separate parts, as well as about the practical application of certain protective arrangements. A theoretical knowledge alone is insufficient in this connection. The construction of mills, however, and the design of their plant, is so various, that it would absorb the full time and attention of a man to gain merely a superficial idea about the principal mill plans. In addition to this, we must not forget that the whole milling is, what we may call, a state of fermentation; the changes due to the introduction of rollers, dismbrators, purifiers, etc., are not yet universally explained and accepted. In many places these changes are yet in their experimental stage, and represent an uncertain groping in the dark. It will need a more extensive experience to settle the superiority of one or the other method, and after that is obtained the question of dangers of accident incidental to the system can be determined on an intelligent basis. Meantime the present treatise will serve as a stimulus to others to follow up this all-important subject, so that the protective measures, guarding against accident, may keep abreast of the technical development of the milling industry.

Reviewing the accidents in the past, we classify them according to the separate machines or parts of machines which caused them. First of all we have to consider some general cause, and among these are the employees clothing, which should always be smooth and close-fitting to the body. Everything loose, flying or hanging, should be avoided. The floors of the mill should be kept as clean as possible, for flour dust tends to make them slippery and dangerous on that account. Special care must be taken that oil cups have waste cups or basins attached to the journal, so that no oil drops can reach the floors.

Speaking about the separate machinery, we primarily divide them into motors, transmissions, working machines and accessory machines.

A—MOTORS.

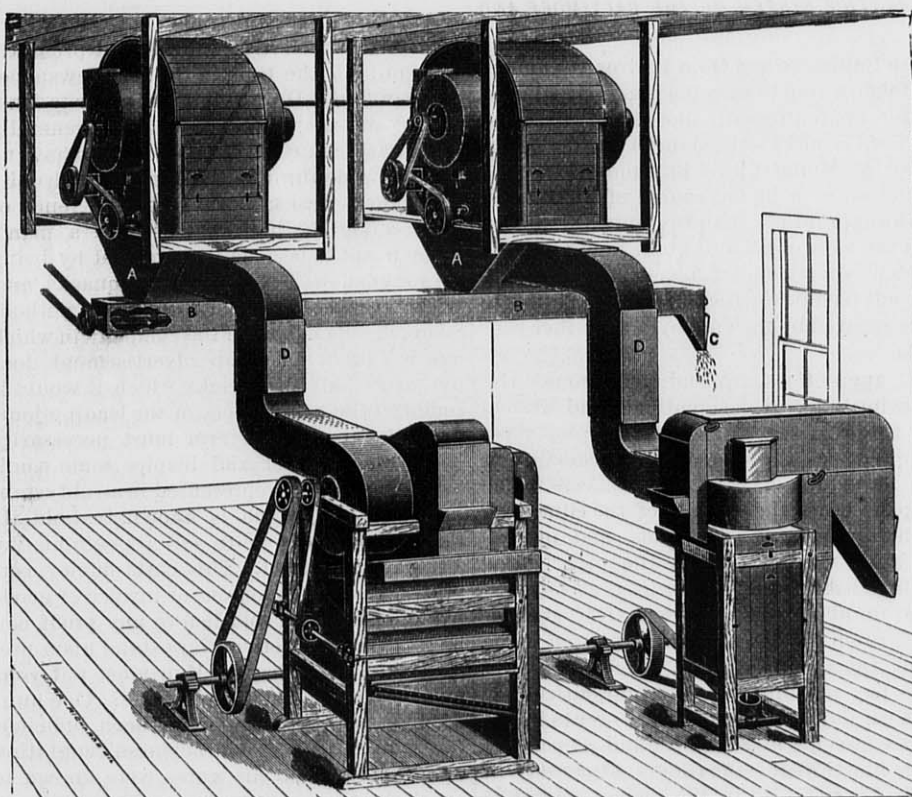
As almost all mills at present receive their motive power from steam, water or wind, a consideration of these motors will cover the ground sufficiently. Generally all these motors have some sort of apparatus connected with them by means of which they can be stopped at will. In larger establishments we find in addition, special signal apparatus by which notice can be sent to the engineer in case of danger. The request of "stop at a moment's notice" can perhaps never be realized, because the factors in motion represent too much weight to be stopped suddenly; it is therefore necessary that means are provided for a sudden stoppage of separate parts of the plant. Care must be taken that any motor or machine which has been stopped, cannot start again by itself in any way, as the most dangerous work is performed during these periods, such as oiling, cleansing and repairing of belts and gearing, and a sudden unexpected starting of the machinery may cause serious accidents.

A place separated from the establishment proper is generally made to contain the wind or water wheels, also the steam engines. The latter especially are benefitted by a separate room, as the flour dust seriously interferes with the cleaning of the machinery, which on this account, needs a larger amount of lubricating oil, more power and is endangered by useless friction. The piston rod and fly wheel should, if possible, be fenced in so that nobody can touch them in any way. Numerous accidents have occurred by the bursting of a fly wheel, and it will be a good policy, if they run at a high velocity, to have a wrought iron band around their flange and to have them boxed in with strong and heavy wood-work to break the force of the flying pieces in case of bursting. Only the engineer and his assistants should have admittance to the engine room, and no stranger should be allowed to remain in it under any circumstances. A sign to that effect should be posted up in a conspicuous place.

The gates for the water wheels seldom close tightly; little twigs, ice, etc., often

DUST COLLECTORS.

Millers have long since been convinced that the dangerous, dirty, cumbersome dust-room should be abolished, and the very fact has led numbers of them to adopt too readily anything offered as a substitute, without first looking into the actual merits of the machines. In many old mills the millers were cramped for room, and this was also an inducement to try a substitute that would occupy so much less space than a dust-room, and although the collection of dust may have been considered a simple matter by the uninitiated, there are very few things that so long baffled inventive skill as an efficient dust collector. The Milwaukee Dust Collector Manufacturing Company, however, came to the rescue with the "Prinz" Dust Collector, which has long since proved itself worthy of everything said in its favor. Our readers are probably familiar with the general construction of this machine from former illustrated descriptions in this journal, and they certainly should be anxious to experience the great advantages to be obtained by its prac-



ILLUSTRATING MILWAUKEE DUST COLLECTOR.

tend to enlarge the small openings. In this manner it is possible that the plant can be started at an entirely unexpected time, perhaps just when men are employed at cleaning or repairing, thus causing serious accidents. Besides this the leakage of the gate may cause, during very cold nights, a freezing of the small quantities of water that leak through, in parts of the wheel, thus causing trouble when the machinery is to be started next morning. On this account something should be done in some manner or other which will prevent the access of any water whatever to the wheel when the gate is closed.

The moisture around the waterwheels, and the formation of ice during winter time, will make the approaches slippery and care must be taken to have the necessary guards in their proper places and in good condition to prevent accidents, such as falling into the water or into the wheel, etc.

It has repeatedly happened with wind mills that people have been struck by the wings; this is an accident for which no safeguard can be invented for older mills. New mills will do well to have the wings up high enough so that the lowest end does not come nearer than six and a half or seven feet to the surface of the ground. Automatic regulators in windmills are necessary for the safety of the employees, as without it the unsteady motion has often been the cause of breaks in the plant, causing injuries of a more or less severe nature to the attendants.—*The Milling World*.

tical use, as the saving of flour alone by their use amounts to from six to seven pounds per barrel, which is an object worthy of consideration. The manufacturers are shipping machines in large numbers to all civilized countries, which is fair evidence that our foreign milling friends appreciate the fact that the "Prinz Patent Improved Dust Collector" is indispensable.

We give on this page an illustration, showing the Prinz Patent Dust Collectors with fan attachments, collecting the dust from a separator and smutter, each cleaning machine having a separate dust collector. The use of the dust collector in connection with grain cleaning machinery is becoming quite general, and is commended for its effectiveness and economy in this particular.

The grain cleaners' fans blow through spouts "D D" to air trunks "A A," upon which dust collectors rest, and from which they suck the air through.

It is very necessary that dust collector fans should be run at such a speed that they will easily dispose of all the air coming to them from cleaners, and produce a tendency to a vacuum in the dust collector and air trunk, thereby preventing any back pressure on cleaner fans; and there should be an inward draught noticed on opening side doors of dust collector, as well as at entrance to "back-draught" tube, which will indicate that dust collector fans are speeded right.

A conveyor "B B" can be placed, as shown in cut, underneath air trunks "A A," carrying off the dust which may accumulate.

The material coming up from dust collector conveyors is run with this, and the whole is discharged through the automatic discharge valve "C" in this cut at end of conveyor.

This discharge valve should be made similar to those on separators or smutters, which simply consists of a piece of board hinged at the top by leather or other flexible material. This is necessary, as otherwise the collector fans would receive air through the opening at that point, whereas it should receive its supply of air from the cleaner.

The spouts discharging the dust from collector conveyors to conveyor "B B" are not shown as they are upon the right hand side of the machine facing the cuts.

When conveyor is not used underneath hopped air trunks, slides should be placed in bottom of trunks as shown in previous illustration, for occasionally removing any dust that may accumulate at this point.

Other applications of the Dust Collector are most successfully made, including its use in connection with purifiers, roller mills, millstones, and, in fact, all dust producing machinery; and the manufacturers have had opportunities of testing the utility of the dust collector under greatly varying conditions. The great number (35,000) of machines sold is a good guarantee that the "Prinz" machine has stood the various tests successfully, and our interested readers may obtain much valuable information by applying to the Milwaukee Dust Collector Manufacturing Company for a copy of their beautiful illustrated "Treatise on Dust Collectors."

SOFTENING LEATHER.

Neatsfoot oil will not soften leather under all circumstances; neither is castor oil any better. Oil is not necessary to the pliability of leather—the leather of the ox, goat, calf, and kid. It is necessary that the leather be kept moist, but oil need not be the moistening means. Yet in use oil is the most convenient means for keeping leather soft. It would be inconvenient to employ water to keep pliable the leather of our boots, because of its spreading the pores of the leather and admitting cold air; besides, unless always wet, leather becomes hard and rigid. Oil, on the contrary, keeps the leather in a proper state for its best usefulness, that of pliability. But in order that oil may soften the leather, its way should be prepared by a thorough wetting of the leather by water. Much less oil is required if the leather is well saturated with water. The philosophy is obvious; water is repellant to the oil, and prevents it from passing entirely through the leather, holding the oil in the substance of the leather. The use of water for softening belts in factories is not inconvenient, if advantage is taken of a holiday. At night the belts may be brushed clean and thoroughly wetted, then in the morning use the oil; a much smaller quantity is necessary to render the belt pliable than when no water is used.

The amount of power wasted by shafting out of line, badly lubricated, of unsufficient size and imperfectly coupled, can hardly be estimated. Great as is this loss, that from badly laced, crooked, stiff and generally outrageous belting is but little less. In some establishments a belt lacing of sufficient size for the main belt of the establishment is considered plenty good enough to lace a three-inch belt with, and is used accordingly. A punch large enough to make holes for the biggest lacings is, of course, necessary, and it has the advantage of answering for all sizes of belts. The apparent advantage of having but one size in a large establishment is captivating to the business department. The result in belt efficiency, however, is something which would astonish the counting house, if it could be made to understand the figures.—*Industrial America*.

UNITED STATES MILLER.

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OFFICE NO. 124 GRAND AVENUE, MILWAUKEE.
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MILWAUKEE, MARCH, 1885.

ANNOUNCEMENT:

WM. DUNHAM, Editor of "The Miller," 69 Mark Lane, and HENRY F. GILLIG & Co., 449 Strand, London, England, are authorized to receive subscriptions for the UNITED STATES MILLER.

We send out monthly a large number of sample copies of the UNITED STATES MILLER to millers who are not subscribers. We wish them to consider the receipt of a sample copy as a cordial invitation to them to become regular subscribers. Send us One Dollar in money or stamps, and we will send THE UNITED STATES MILLER to you for one year.

The United States Consuls in various parts of the world who receive this paper, will please oblige the publishers and manufacturers advertising therein, by placing it in their offices, where it can be seen by those parties seeking such information as it may contain. We shall be highly gratified to receive communications for publication from Consuls or Consular Agents everywhere, and we believe that such letters will be read with interest, and will be highly appreciated.

TO ADVERTISERS.

Milwaukee, Wis., March 1, 1885.

To Those Interested in the Flouring Trade:

THE UNITED STATES MILLER is now in its ninth year, and is a thoroughly established and much valued trade paper. It has a large regular list of domestic and foreign subscribers. It is sent monthly to United States Consuls in foreign countries, to be filed in their offices for inspection by visitors. It is on file with the Secretaries of American and European Boards of Trade for inspection of members. Aside from the above, thousands of SAMPLE COPIES are sent out every month to flour mill owners who are not subscribers, for the purpose of inducing them to become regular subscribers, and for the benefit of those advertising in our columns. Every copy is mailed in a separate wrapper. Our editions have not been at any time since January, 1882, less than 5,000 COPIES each, and are frequently in excess of that (see affidavit below). We honestly believe that the advertising columns of the UNITED STATES MILLER will bring you greater returns in proportion to the amount of money invested than any other milling paper published. Advertisers that have tried our paper for even a few months have invariably expressed themselves well satisfied with the results. Our advertising rates are reasonable. Send for estimates, stating space needed. The subscription price of the paper with premium is One Dollar per year. Sample copy sent free when requested. We respectfully invite you to favor us with your patronage. We shall be pleased to receive copies of your catalogues, and also trades items for publication free of charge. Trusting that we may soon be favored with your orders, we are,

Yours truly,

UNITED STATES MILLER.
 E. HARRISON CAWKER, Publisher.

"MILL FOR SALE" ads. inserted once for \$2.00, or three times for \$5.00, cash with order.

"SITUATION WANTED" ads. 50 cents each insertion, cash with order.

STATE OF WISCONSIN, ss.

MILWAUKEE COUNTY.
 E. HARRISON CAWKER, editor and publisher of the United States Miller, a paper published in the interest of the FLOURING INDUSTRY, at No. 124 Grand Avenue, in the City of Milwaukee, and State of Wisconsin, being duly sworn, deposes and says that the circulation of said paper has at no time since January, 1882, been less than FIVE THOUSAND (5,000) copies per month; further, that it is his intention that it shall not in the future be less than FIVE THOUSAND copies each and every month; further, that he has paid for regular newspaper postage at the rate of two (2) cents per pound on domestic and Canadian newspaper mail for the years 1883 and 1884 the sum of \$423.74, showing an average of \$17.65 per month for 24 months; the average weight of domestic and Canadian mail being 882½ pounds per month and the total number of pounds of such newspaper mail sent out during the 24 months ending with December, 1884, being 21,180 pounds. Six copies of the U. S. Miller weigh about one pound. The above postage does not include postage paid on local or foreign papers, Canada excepted.

E. HARRISON CAWKER.
 Subscribed and sworn to before me this 7th day of January, A. D. 1885.

G. MCWHORTER.
 Justice of the Peace, Milwaukee, Co., Wis.

MILWAUKEE AMUSEMENTS.

GRAND OPERA HOUSE.—Performances every evening, and Wednesday, Saturday and Sunday matinees.

ACADEMY OF MUSIC.—Performances every evening, Wednesday, Saturday and Sunday matinees.

SLANSBY'S VARIETY THEATER.—Performances every evening, and Thursday and Sunday matinees.

DIME MUSEUM.—Performances every hour from 1 P. M. to 10 P. M., every day. Freaks, curiosities and excellent stage performances.

MILLERS, flour dealers, etc., desiring to transact business by telegraph or cable, will do well to read the "Private Telegraphic Cipher" advertisement of the Riverside Printing Co., on page 72 of this paper.

THE value of wheat flour imported into Canada the last six months of 1884 was \$1,650,268; corn meal, \$185,061. The total value of wheat exported from Canada for six months mentioned above was \$3,460,167, of which only 782,969 was product in Canada.

According to some of our medical journals, the use of mullein as a palliative for the

cough or phthisis seems to be meeting with favor in various quarters. The customary form of administration has been a milk decoction of the plant. More recently the smoking of the leaves has been recommended as a more agreeable and effective method of administration.

PERSONAL.

Mr. G. M. Marshall, of the firm of G. M. Marshall & Son, made us a pleasant call Feb. 25.

On the evening of Feb. 9, Miss Lily M. Porter, daughter of M. L. C. Porter of the Porter Milling Co., Winona, Minn., was married to Mr. W. M. Chandler, second son of Hon. Wm. E. Chandler, Secretary of the U. S. Navy.

John K. McIver, for a long time secretary of the Detroit Board of Trade, died suddenly of paralysis of the heart, Feb. 18.

M. H. Buck, formerly engaged in milling at Delafield, Wis., has moved to Wausau, Wis., and is not now in the business.

W. D. Gray is still at the New Orleans Exposition.

Col. Otway Watson, president of the Case Manufacturing Co., of Columbus, O., died February 19th, at his home in Columbus, after an illness of four months. He leaves a family consisting of a wife and two young daughters.

The illustration on page 69 gives a good view of the present appearance of the largest mill in the state of New York. It is in New York City, and is the property of Messrs. G. V. Hecker & Co. The mill has a daily capacity of from 2,000 to 2,500 barrels of wheat flour, and also makes a large quantity of oatmeal of various grades, cracked wheat, etc. The goods made by this firm are to be seen in nearly all first-class groceries in this country. The mill was burned down a few years ago, but was recently rebuilt with all the latest improvements.

APPRENTICE SYSTEM OF THE BALTIMORE AND OHIO RAILROAD.

The Baltimore and Ohio Railroad Company has taken a step toward the practical solution of the apprenticeship question. An order has been issued establishing a technological school at Mount Clare, Baltimore, "for the promotion of a higher course of instruction for the apprentices than that now pursued," with the view of affording the young men in its employment opportunities for obtaining a liberal technical education far superior to those enjoyed by the employees of other railroads.

All apprentices are embraced under the following general designations, and graded into three classes: The first or junior class of apprentices, the second class or cadets, and third or senior class of cadet officers. The company bears the expense of the education of the apprentices and cadets, and in consideration thereof expects the privilege of availing itself of their services, at fair salaries, for at least three years after graduation. From the day of their admission to the school the apprentices and cadets are to receive pay as follows: The apprentices, 70 cents per day in the first year, 80 cents in the second, 90 cents in the third, and \$1 per day in the fourth year; the cadets, \$1 per day in the first year, \$1.12½ in the second, and \$1.25 per day in the third year, and cadet officers, \$1.50 per day in the first year, \$1.75 in the second, and \$2 per day in the third year.

In their appointment to the school, preference is to be given, other things being equal, to the sons of employees, who have been killed or injured in the company's service, and free tuition is given to those only who are sons of employees having been in the service of the company for five consecutive years. They must pass a Board of Examiners as to proficiency in elementary studies and soundness of health, and are subject during study to rigid discipline and frequent examinations. The exact scope of the school and the service for which its pupils are to be trained are not clearly defined; but it is evident from the long courses that the places to which they may aspire after their training are high indeed.

THE GREAT DALRYMPLE FARM.

S. A. Dalrymple, of the celebrated Dalrymple farm at Casselton, Dak., and nephew of the proprietor, recently said:

"We had this year 32,000 acres in wheat and 2000 acres (enough to feed the stock) in oats. Nine successive crops have been raised off this land, and this year our wheat averaged 14, 15 or 16 bus. to the acre. Next year we will begin to summer fallow, letting about 3,000 acres lie idle each season till it has all had a rest. We expect that after the summer fallowing the yield will be from 20 to 25 bus. per acre.

"The 34,000 acres are divided into three farms of nearly equal size. For each of these there is a headquarters, with a superintendent,

bookkeeper, foreman, agent and other officers. These farms are again divided into sections of 2000 acres each, under a division foreman, who carries out the orders from headquarters transmitted to him by telephone. Each division has its boarding house, with men cooks. In the spring seeding about 500 men are employed, and during the harvest about 1,000. In the fall all the hands are discharged except sufficient to attend the 400 or 500 horses and mules through the winter. At each headquarters there is a store upon which the cooks make requisition for all provisions. The whole thing is so systematized that we can tell to a cent the cost of a meal's victuals for a man, and the cost of seeding, reaping or plowing an acre of ground.

"We ship all our wheat to Duluth, and thence to Buffalo, where we find the best market. To-day wheat sells in Buffalo for 4c more, after the shipping expenses are allowed for, than at Duluth.

"A thing which is needed as much as legislation," said Mr. Dalrymple, "is competition on the lakes. Duluth enjoys a monopoly, and, as a consequence, the grading of wheat is entirely arbitrary and unjust. The yhave established the new grade No. 1 northern, and have, practically, done away with the old No. 1 hard, which originated in the northwest. They have nine different grades, and I am satisfied that no living man can distinguish nine varieties of wheat in that which comes into the Duluth market.

"As an illustration," resumed Mr. Dalrymple, "I had a separate piece of 100 acres which I had entirely cut in one day. It was also all stacked on the same day, and hauled to market on the same day. I shipped it to Duluth, and received three separate gradings for it. Now, it is impossible that any real difference could exist. No one part of it could have been in any way damaged or inferior to any other part. It is such things as this convince me that the grading is done by no system, and is quite arbitrary. I doubt if one-half the wheat is even so much as looked at by the inspectors."

Ask the successful trader how and where it is best to advertise, and he will promptly tell you: all the time in the best newspaper you can find. He will tell you never to trust to the tiresome circular, which is generally tossed aside unread, as business men have no time to wade through the dozens which daily flood their desks; nor yet to the fence or stone along the highway, because a man's name is apt to become demoralized by being confounded with those of the quacks and tricksters who invariably prefer this method. So much depends upon the company in which one is found. A cheap advertisement does not carry half the weight which it would if found in the pages of one of the leading journals of the day. A firm must necessarily gain some respect and inspire some confidence from being represented in an old established journal which is known to hold its reputation too high to soil its columns by advocating a fraud. This costs money, certainly, so does the cargo or invoice of goods which have to be sold before any profit can be realized, but both outlays stand upon precisely the same basis. You must put your money out and await the returns. One hundred years ago it might have been sufficient for a man to rest his business reputation upon the fact that his wares were known to excel all others, but to-day when every trade and profession is teeming with a rushing competition mere superiority alone stands no chance whatever. You must keep yourself constantly before the public by patient and persistent advertising or you will sink into oblivion, and your wide awake neighbors, whose goods are not half as valuable as yours, will be counting his gains while you are footing up your losses.—*Journal of Commerce.*

SAMPLING WHEAT.

"I beg your pardon, sir: but I have often seen you fellows with these sticks and little bags and always wondered what they could be used for."

The above remark was made Saturday by an elderly gentleman to a young man on Third street and Third avenue South.

"Why, you see—but if you're going up town, let's walk along—fearful cold weather this?"

"Yes, but about the stick?"

"O! the prod. We sample cars of wheat with these. You see this cup on the bottom? Well, this is plunged down into the wheat, then the string is loosened off from the top here, the stick pulled out and then the cup hauled up by the string full of wheat from the bottom of the car. See!"

"What do you do with it when you get it?"

"One of these little bags is filled with wheat from all parts of the car, taken up to the chamber of commerce and the car sold on the merits of the sample."

"Ah! I see!"

"Then sometimes we have wheat shipped in and then we have to try it to see that it is not 'set up.'"

"Set up;" what's that?"

"Well, sometimes the smart ones in the country will put soft wheat in and cover it up with hard and try to palm the whole off as hard wheat."

"Are there many ways of setting up a car?"

"Just as many as there are buyers. I found three cars set up this week, one had about ten inches of soft wheat in the bottom and then was filled the rest of the way with hard. Another one had a layer of about fourteen inches sandwiched in between layers of hard. The third one and probably the most difficult to detect was loaded to swindle—fifteen or twenty bags were placed separately in the car, all standing on the opened end. Then the car was filled with hard wheat to the level of the bags, when the bags were carefully raised, the wheat was carefully left in the same position as if the bags were still around—then hard wheat was spread over the top, leaving a car of No. 1 nicely plugged with thirty to forty bushels of soft wheat."

"Does it pay shippers to set up cars?"

"No; honesty is the best policy in loading cars. They may get one or two cars through, but when the inspectors get on to it the shippers will lose grades all the rest of the season."

"Lose grades! What's that?"

"O! the inspectors give the buyers the benefit."

"What do you dealers think of a man who doctors his cars?"

"They think him a fit subject for Stillwater or St. Peter. Say, do you know where they generate cold? No, Well, you go up some raw morning and stand on the railroad track, back of Elevator A 1 and 2, and if you don't come to the conclusion that you have struck the manufacturing center, then I give it up."

"Pretty cold job then, getting samples?"

"You bet; a fellow might look around a long while before he found a colder place to put his feet than in a car of wheat."

Then they parted and the reporter heard no more.—*Minneapolis Tribune.*

LIENS FOR MACHINERY FURNISHED.

It frequently becomes an important question to mill furnishers and manufacturers, and furnishers of machinery of various kinds, how they are to be secured when machinery is put into mills and buildings on credit, or not to be paid for until used. In many cases the machinery partakes of the nature of fixtures. It then becomes a part of the realty and ceases to be chattels. If the real estate is mortgaged, the machinery may be covered by the mortgage, and the furnisher loses all right to take possession of the machinery he has put in, and by the foreclosure of the mortgage and financial failure of the owner of the property, he is without remedy. We have known of cases in which vendors have taken chattel mortgages on machinery and appliances put into mills and buildings, to secure part payment of the purchase price. Frequently, also, the sale of machinery is a conditional contract. It is agreed between the vendor and the vendee that the title shall not pass until it is paid for, and the law will uphold a sale of chattels made on such condition, although in some States, as in New York, the agreement must be in writing, and filed as a chattel mortgage. In the absence of a statute making a writing obligatory, a conditional sale is valid, whether made orally or expressed in writing. As just intimated, however, the difficulty which the furnisher may get into if he relies on a chattel mortgage or conditional sale to protect himself, is the fact that when the machinery is put into place, it may, and usually does, become a fixture and a part of the realty, and the furnisher's security is good for nothing, and the conditional sale loses its force.

As to whether a piece of machinery will become a fixture when put into a building or manufactory of any kind, depends largely upon the circumstances of a particular case. As a general rule, it will become a fixture, if so attached or affixed to the mill or building as to become a permanent and an habitual part of it, or if it becomes a component part of the structure for the purposes for which it is designed, or if without it the mill or manufactory would be incomplete or imperfect, it is a fixture. Something depends, also, upon the intent of the purchaser in putting it in. If it is put in with the intent of making it a permanent accession to the building, and of using and adopting it as a part of the machinery and process of manufacturing, such intent will do much toward making it a fixture in the eye of the law, without reference to the manner in which it is attached or affixed to the building, and without reference to the fact whether it can be removed without damage or injury to the structure. In brief, if the article or appliance is essential to the use of the mill or to carrying on the process of manufacture for which the building is designed, and has been put in to be used exclusively in connection with it,

and is a necessary part of the machinery, or a necessary appliance for carrying on the particular manufacture, and without it the efficiency of the mill would be appreciably impaired, then it is a fixture, and a part and parcel of the building, and of the land upon which it stands. For amplification of the law of fixtures, with illustrations taken from cases which have actually occurred, the reader is referred to an article on the subject by the writer in a previous issue of *The Lumber World*.

On applying the above rules, therefore, if there is any doubt that the machinery or appliance may become a fixture, and the furnisher proposes to have a lien to secure himself for the purchase price, or a part of it, by agreement with the purchaser, the only safe and secure lien is a real estate mortgage, covering the structure in which the machinery is placed. But there are very frequently cases in which the furnisher has a lien for the whole value of the machinery furnished, without any agreement with the purchaser for such lien, and the remainder of this article will be devoted to this class of liens. We refer to what is commonly known as the mechanic's lien. A better designation would be "statutory lien," as it arises and is created by express statute, and is thus distinguished from all other liens. Every State in the Union has a statute creating a lien of this nature. The original design of these statutes has ordinarily been to protect workmen, mechanics and material men, who have performed work, labor or services, or furnished material toward the erection, alteration or repair of any building or structure. Every statute contains words which extend its scope as far as this at least, although they differ somewhat in their wording. The wording of some statutes is such that its scope is extended expressly or by implication to furnishers of machinery and fixtures, while the scope of other statutes is left in doubt, and must be interpreted by the courts. In some States, as in New York, Pennsylvania, Michigan and Ohio, the wording of the statute is such that a lien is expressly created in favor of one who furnishes machinery or fixtures for a mill or manufactory of any kind. In most of the States, however, it is left in doubt, but it may be stated as a general rule of law, that machinery incorporated into a building, in such a manner as to become fixtures, will subject the entire building and the land on which it stands, to a lien for the value of the fixtures.

It may also be stated as a general rule of law that the lien attaches from the time the machinery is put in position or affixed to the building, and it takes precedence of all other liens or incumbrances placed upon the property after that time. In other words, the owner of the structure cannot, by agreement with some one else, or by suffering judgment, create a lien on the property which will be prior to that arising in favor of him who furnishes fixtures. As a matter of course, the statutes being designed to create liens on real property, no lien will arise in favor of him who furnishes machinery which is so placed in a building, and used and applied, that it does not become a fixture, but remains personal property.

As we have intimated above, most of the statutes of the various states create a lien for "materials furnished and services rendered in the construction, erection or repair of any building." Connecticut has a statute worded in that way, and its courts held that it created no lien for machinery furnished for fitting up a woolen mill, although the machinery was so affixed and attached to the building as to become fixtures, and a part and parcel of the structure, for the reason that the furnishing of the machinery does not constitute an erection, alteration or repair. In this case the building was already erected at the time the contract for furnishing the machinery was made. Had the machinery been furnished and put in at the time of the erection of the building, then the furnisher would have had a lien and the court so held, because it would constitute an "erection" coming within the meaning of the act.

It may be stated as a further general rule of law, therefore, that a person contracting to erect a building and equip it with machinery and fixtures for manufacturing purposes, will have a lien, not only for the materials that are used in the construction of the building, but also for the machinery and fixtures. Unfortunately, however, in actual practice, this course is so seldom carried out by furnishers of machinery that they would receive very little benefit from the mechanic's lien laws, if they were brought within the scope of the laws in no other case. If the statute contains words giving a lien for "improvements" to a building or structure, it has been held that the putting in of machinery in the nature of fixture is an improvement and gives rise to a lien.

Readers may be inclined to think there is a good deal of quibbling about the mechanic's

lien laws as construed by the courts. It arises in this way: The statutes are in derogation of the common law. They create a lien which would not exist if the statute were not enacted, and impose a lien upon a man's real property without his express consent for a lien, and therefore they must be strictly construed; that is, the courts must not allow a lien to be created by them in cases where it was not the intention of the legislature to create a lien. The interpretation of the intention of a legislature as manifested in a statute, is a work in which any judge, not more than human, might err. In conclusion, we would advise machinery furnishers, as well as purchasers, if they wish to ascertain when a lien will arise for machinery and fixtures, to consult the statute of their own state and the decisions of the courts construing it.—*Lumber World*.

At a recent meeting of the American Society of Civil Engineers, a paper was read on Mexican Bridge Construction, by J. Foster Flagg, M. Am. Soc. B. E. The bridge was remarkable from being the work, from his own design, of an ordinary uneducated Mexican laborer or peon, combining, as it did crudely, several principles of bridge construction. Bridges in Mexico are generally built of arched masonry, anything like a truss, being, before the advent of railroads, almost unknown. In the State of Colima, where this particular structure was built, there were very few bridges of any description, and those few the ordinary arched ones. The peon referred to was, some four years ago, the ferryman where a trail for cargo mules crosses the river Armeria. He happened to see a copy of *Harper's Weekly* that had in it an illustration of a suspension bridge. As a result of his study of this picture, he put up a structure quite closely imitating the ordinary suspension bridge; the cables and suspenders being twisted from wild vines (*vejucos*), the cables being passed over rude frames for towers, and anchored to huge boulders in the river banks. The whole structure was built without nails or metal of any kind. It was carried away by a heavy freshet the same year; and directly afterward, the same man built another structure quite original in design. It was also put together without nails or metal. The cable was formed of wild vines twisted, and all the joints tied together with lighter vines, no manufactured rope being used in the structure. The piers were made by driving light piles into the river bed, in the form of a square, tying them together with other poles, and filling with stone. The towers were natural forked sticks; the top fork being used to support the cable, and the lower fork to support the timbers. The timbers upon these forked sticks were really rude cantilevers, weighted at the shore end and supporting the timbers of the central span. The only point of attachment of the cable was at the center of the bridge. The roadway was of rude joists and boards, sufficient to pass one animal. The bridge was strong and rigid.

The paper was discussed by a number of members, and reference was made to bridges constructed of raw vines and cowhide in Peru and other South American countries.

AN OHIO RAT STORY.

A few days ago a gentleman who had noticed the signs of rats eating corn kept in a large open bin on his place, was much puzzled to account for their getting out, as, from the shape of the bin, while it was an easy matter to get in, getting out seemed impossible. The sides of the bin are very smooth and slope inward, making it out of the question for the rats to climb out. A day or two later, hearing rats in the bin, he made a slight noise and watched to see how they got out. One old rat ran from his hiding place on the outside of the bin to the top of it, and lowered himself down inside until he held on only by his forepaws and head. His friends, seizing his tail, climbed up by this rat ladder until the last one was out, when he drew himself out and scampered off.—*Fayetteville Observer*.

"You must have lived here a long time," said a travelling Englishman to an old Oregon pioneer. "Yes, sir, I have. Do you see that mountain? Well, when I came here that mountain was a hole in the ground." The Englishman opened his halfshut eyes.

NEWS.

The new flouring mills at Kilbourn City, Wis., are now running.

Vaddell & McKercher's flour mill at Dominion City, Man., is burned.

Stephen Nairn has started up his new oat-mill at Winnipeg, Man.

Roanree & Holcomb have leased Pearce's mill at Brodhead, Wis.

Steele & Small is the name of the new milling firm, at Benson, Minn.

Bibb & Co., Westminster, S. C., will soon start up their new roller mill.

H. W. Pratt & Co. will erect a 400,000 bushel elevator in Minneapolis, this year.

It is reported that Henry Page and others will build a large mill at Fergus Falls, Minn.

Burned—Feb. 5, Darrah's mill, at Big Rapids, Mich. Loss \$40,000. Insurance \$15,000.

Discouraging reports as to the condition of winter wheat in Kentucky are being received.

The Crescent Mills at Hokah, Minn., start up during March, after being completely overhauled.

Burned—Feb. 3, Howland, Robinson & Co.'s mill, at Watertown, Ont. Loss \$35,000; insured.

The United States Mills, St. Louis, are using the Jonathan Mills' flour dressing machine.

Mr. Louis Gathman, of the Garden City Mill Furnishing Co., Chicago, has sailed for Europe.

Utah wheat is being introduced in the St. Louis market. Both spring and winter wheats are raised.

The Regina Mills, St. Louis (formerly known as the Atlantic), has started up and will run regularly hereafter.

Jacob Dove's mill, at Concord, N. C., was burned recently, and he is making arrangements for building another.

D. & L. Higley have purchased R. C. Hatch's mill at Fayetteville, N. Y., and Mr. Hatch has retired from the business.

The boiler in McDaniel & Wright's flour-mill exploded Feb. 12, killing James High, the engineer, and wrecking the building.

H. P. Chapman, of Akron, O., has patented a flour-packer and assigned it to the well known firm, Howes & Ewell, Silver Creek, N. Y.

I. W. York, formerly of Kilbourn City, Wis., has removed his mill to Douglas Centre, where he has now a neat 50-barrel water-power mill.

David Fairbairn, of Spencerville, Ont., is making arrangements for the building of a new flour mill in the place of his recently burned one.



The North Star Iron Works, in Minneapolis, have been making extensive additions to their works preparatory to doing a larger business than ever before.

Comstock, Jr. & Co., of Milwaukee, succeeded Lawson & Bell in the roller mill at Gal-

lipolis, O. The mill is run by steam power and has a daily capacity of 150 barrels.

D. H. Caswell, of Nashville, Tenn., has just completed the large cotton seed oil mill at Macon, Ga., and claims that it is the only standard oil mill in the country. The work was so well constructed, and the plans so perfect that the insurance companies took it at 2 per cent. Mr. Caswell has also just completed the enlarging of the Trenton, Tenn., cotton seed oil mill, having doubled its capacity.

Our imports of flour into the U. K. last week were very large, viz.: 808,167 cwt., or 163,900 sacks of 280 lbs., being two-thirds of the wheat imports, a larger proportion than we have had for a long time past. With regard to our imports of American flour, instead of decreasing, as many were under the impression they would, they have been increasing, and last week's total shipments from the Atlantic ports were no less than 234,000 bags of 40 lbs., of which Glasgow took 112 bags, or nearly one-half. These figures do not include the California flour shipments, which are also important. Low prices do not seem to check the American trade, but on the contrary seem favorable to it.—*Millers' Gazette* (London, Feb. 2).

E. B. Whitmore, miller at the Emery mill, says the Three Rivers, Mich., *Herald*, has invented and patented a device to automatically regulate the supply of flour or middlings fed to all kinds of rolls. The middlings are evenly fed clear across the roll, and is so arranged that when once set it will keep up a regular feed for hours without any changing or care. He has put in 33 sets into the Emery mill, and 15 sets into the Hoffman mill, and the work is very satisfactory. Mr. Whitmore is a practical miller of years' experience, and believes that his invention is one that millers will be glad to use when they know its good points.

Nairn's oat meal mill, in Winnipeg, is now in operation. It is the most extensive and complete mill of the kind in the province, says the *Free Press*, and an important addition to the industries of Winnipeg. The cost of the building and machinery has been about \$15,000. The building is 50x50 feet and has four stories including the basement. The engine is of sixty horse-power and is from the establishment of Inglis & Hunter, Toronto, who have also supplied part of the machinery, other portions being supplied from Scotland. The boiler is supplied with water from a well sunk to a depth of 90 feet. The building is heated with steam, pipes being placed all through it at considerable expense.

The Westinghouse Machine Company, of Pittsburgh, report trade as opening remarkably active in 1885. Their sales for the month of January were 67 engines, aggregating 1732 H. P., which is certainly good for hard times. The Electric Light industry still continues to furnish plenty of business. Besides a large number of engines for lighting private establishments they have contracted for the following public stations: The Newton Electric Light Co., of

Newton, Iowa, one Westinghouse automatic engine of 35 H. P.; the Champion Electric Light Co., of Springfield, O., two engines of 60 H. P. each; the Excelsior Electric Light Co., Port Huron, Mich., one 60 H. P. Westinghouse automatic engine; the Northwestern Electric Light and Power Co., of Omaha, Neb., one engine of 45 H. P.; the Weston Electric Light Co., Lexington, Ky., one 80 H. P. engine, being the second one within two years; the Brush Electric Light Co., of Buffalo, N. Y., also order two more engines of 65 H. P. each, making twelve Westinghouse engines in all, which are running in their principal stations.

Mr. Frank B. Hancock, of Casky, Christian Co., Ky., writes as follows: "If you hear of some enterprising, wide awake man with money, who wants to establish a mill, invite him to correspond with me. A good mill, of either medium or large capacity would, I am sure, pay here. Our nearest mill to this place, is 2½ miles, and that does not run all the time, owing to the lack of water. Several fair mills are in the county town, five miles distant; roads are too bad for customers to go there about half the year. A mill here would, therefore, secure a large business, located in the center of a large wheat growing country. Party owning mill should be prepared to buy and store wheat. Over 100,000 bushels could be obtained here easily. A first-class mill-site with never failing water could be obtained on the L. & N. R. R., near the station, with little if any cost to mill owner, and siding put in for the mill at any time."

W. P. Chisholm, business manager for the Waukegan Mill Company, Waukegan, Ill., was killed at 10 o'clock on January 31, by being whirled about a shaft at their mill in that city. The regular miller being sick, Mr. Chisholm set out to run the mill himself, starting it at about 9:30 o'clock. The engineer noticed at a little before 10 o'clock, that his engine was moving slowly, but supposed it to be from a choking of the stones, and that the miller would relieve it in a moment. He stood with his hand on the throttle for some time, and the machinery running still slower, he stopped his engine and ran to the floor above. Not finding any one he went to the next floor, where he found Mr. Chisholm's body suspended from the shaft. So tightly was it held that it required some minutes to effect its release. It is supposed that he had stepped upon a ladder to look into a bin, when his coat was caught by a belt and he was drawn against a shaft. He must have revolved for from five to six minutes, his limbs striking the ceiling and the sides of the bin at each revolution. His legs were stripped and his feet and one arm crushed, but his head and face were not disfigured. Mr. Chisholm was 36 years old, a native of Canada, but had lived in Highland Park and Chicago for some years. He was a member of the Chicago Commandery of Knights Templars. Waukegan Sir Knights have had charge of his body since the accident, and Eminent Commander Daniel Brewster broke the sad news to Mrs. Chisholm. A widow and three children, the youngest but two months old, survive.

MILLING PATENTS.

The following list of patents relating to milling interests granted by the U. S. Patent Office, during the past month, is specially reported by Stout & Underwood, Solicitors of Patents, 66 Wisconsin st., Milwaukee, who will send a copy of any patent named to any address, on receipt of 50 cents:

Issue of January 27, 1885.—No. 311,295—Dust Collector; W. Cook, Columbus, Ind. No. 311,229—Feeding device for Rolling Mills; W. B. Chisholm, J. Walker and E. H. Martin, Cleveland, O. No. 311,334—Elevator Chain; C. W. Levally, St. Paul, Minn. Nos. 311,335; 311,336; 311,337;—(Bucket) Elevators; C. W. Levally, St. Paul, Minn. No. 311,365—Discharge Apparatus for bins, grain spouts, etc.; H. G. H. Reed, Milwaukee, Wis.

Issue of February 3, 1885.—No. 311,468—Device for unloading grain from vehicles; J. H. Brown, Chicago, Ill. No. 311,508—Roller Mill; J. D. Millar, Milwaukee, Wis. No. 311,626—Grinding-mill; F. Wilson, Easton, Pa. No. 311,670—Apparatus for Feeding Flour, etc.; A. D. Northrup, Carbon, Ia. No. 311,727—Grain Separator and Scourer; J. Damp, Ashland, O. No. 311,808—Middlings Purifier; E. T. Butler and F. McFeely, Philadelphia, Pa. No. 311,811—Flour Packer; H. P. Chapman, Akron, O. No. 311,829—Gradual Reduction Machine for grain, etc.; W. D. Gray, Milwaukee, Wis.

Issue of February 10, 1885.—No. 311,873—Flour Bolt; W. F. Cochrane, Indianapolis, Ind., and G. T. Smith, Jackson, Mich. No. 311,904—Grain Separator and Cleaner; L. Lockwood, Des Moines, Ia. No. 311,927—Pressure-indicator for Roller-mills; E. Strong, Kalamazoo, Mich. No. 312,048—Roller Mill; J. Warrington, Indianapolis, Ind. No. 312,215—Disintegrating Apparatus for Flour Mills; A. C. Nagel, R. H. Kaemp, and A. W. F. G. Linnenbrugge, Hamburg, Germany.

Issue of February 17, 1885.—No. 312,392—Roller-mill; G. T. Smith and W. F. Cochrane, Jackson, Mich. No. 312,399—Combined Grain Separator and Smutter; H. L. Martin, Lancaster, Pa.

BOOK NOTICES.

THE SPORTSMAN'S JOURNAL.—For twenty years the *Turf, Field and Farm* has been under the same direction, and it has grown up with the breeding industries founded since the civil war. It also has largely influenced the wonderful development of turf, field, athletic, aquatic and other sports. No journal in the country stands so close to the breeders and track managers, and none more truly voices their sentiments. Having had so much experience, it always gives wise counsel, and its views command the widest respect, and are quoted throughout America and Europe. No paper of its class published in this country ever had so strong a staff. The best talent that can be found is employed in every department. The paper is unapproached in accuracy as well as in the vigorous expression of intelligent thought, and it is not a matter of wonder that its circulation should be greater than that of any other journal devoted to kindred subjects. The enterprise of the *Turf, Field and Farm* is not less marked than its ability, and it is a pleasure to find it so numerously read and wielded so much power.

We acknowledge the receipt of a copy of the annual report and statements of the chief of the Bureau of Statistics on the foreign commerce and navigation of the United States for the fiscal year ended June 30, 1884.

ONE of the handsomest and most unique and original ideas in chromo-lithography is the Columbia Valentine, just issued by the Pope Manufacturing Co., of Boston, Mass. The design is in twelve colors, from a painting by Copeland, of Boston, is mounted on a panel, and is a genuine work of picturesque art, representing, in three scenic sections, the morning, noon and night of cycling.

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MILWAUKEE, MARCH, 1885.

We respectfully request our readers when they write to persons or firms advertising in this paper, to mention that their advertisement was seen in the UNITED STATES MILLER. You will thereby oblige not only this paper, but the advertisers.

Cawker's American Flour Mill and Mill Furnishers' Directory for 1884-5.

published by E. Harrison Cawker, of Milwaukee, Wis., and sold for (\$10.00) ten dollars per copy, is now ready for delivery. It shows the result of an immense amount of labor, careful inquiry and studious attention to details. It is without doubt the most accurate trade directory ever published, and will be of untold value to those desiring to reach the milling industry of America.

We glean from this neat volume of 200 pages containing no advertisements, that there are in the United States of America and our neighboring Dominion of Canada 25,500 flouring mills, taking them as they go great and small. The work indicates in about 10,000 instances the kind or kinds of power used by the mills, and the capacity in barrels of flour per day. It further indicates cornmeal, buckwheat, rye-flour and rice mills. It shows that the number of mills in the various states and territories of the United States are as follows: Alabama 153; Arizona 17; Arkansas 343; California 222; Colorado 54; Connecticut 288; Dakota 81; Delaware 98; District of Columbia 5; Florida 66; Georgia 631; Idaho 21; Illinois 1123; Indiana 1089; Indian Territory 14; Iowa 790; Kansas 489; Kentucky 713; Louisiana 61; Maine 28; Maryland 353; Massachusetts 340; Michigan 846; Minnesota 487; Mississippi 386; Missouri 1025; Montana 21; Nebraska 25; Nevada 13; New Hampshire 182; New Jersey 442; New Mexico 32; New York 1902; North Carolina 848; Ohio 1443; Oregon 145; Pennsylvania 3142; Rhode Island 51; South Carolina 274; Tennessee 801; Texas 730; Utah 110; Vermont 247; Virginia 781; Washington Territory 61; West Virginia 447; Wisconsin 777; Wyoming 2.

In the Dominion of Canada we find the record as follows: British Columbia 17; Manitoba 54; New Brunswick 198; Nova Scotia 12; Ontario 1160; Prince Edward's Island 39; Quebec 531. Total 25,500.

Taking the work throughout, and it is highly interesting to all concerned in the trade, and we take pleasure in recommending it.

At the close of the year 1884 there were 10,832 miles of railroad in India.

THE associated banks of New York city are now carrying a reserve of over \$140,000,000, an accumulation of money that is earning little or nothing, and is a significant indication as to what extent the propelling force of active trade is bottled up in idleness. The New York *Commercial and Shipping List* says that a year of distrust and disaster has brought this condition of affairs into existence, and it can scarcely show improvement until a demand has been created for more trading capital and investments can be made without the fear of loss and depreciation.

WAR is often the means of advancing civilization. England, in carrying the war into Africa, is opening up the interior of that "dark continent" to the attention of the entire civilized world. England has thus far been unfortunate in losing so many distinguished soldiers, and the policy which sacrificed Chinese Gordon to butchery by barbarians is condemned in the severest terms not only in England, but in America. The world expects now that England will push the war in the most vigorous manner possible, and make El Mahdi pay dearly for his present ascendancy.

THE intensely cold weather which has prevailed throughout the country north of the Ohio river has certainly had a very depressing influence on business affairs for the past sixty days; but now that it is past and "gentle spring" approaches, and navigation will soon open, we certainly look for better times. There are rumors of prospective wars in the eastern hemisphere, and if they should occur it will be to a certain extent beneficial to this country. It is to be hoped that this country will be spared the visit of the cholera, but it is scarcely probable that we can entirely escape from its ravages.

BEFORE this paper reaches many of our readers, a change of national administration will have taken place. The Republican party will step down and out, and the Democrats will step into power. What effect will it have on business? is the question that every practical American will put to himself. If

it has any effect whatever, we are inclined to believe that it will be to improve business. The change being accomplished, political agitation will not depress business affairs. Those gentlemen who have so long held office will be ready to draw their accumulations out of bank and invest them in some enterprises, and the Democrats who have been building up fortunes in business will now have an opportunity to spend their money while in office.

THE BUDAPEST MILLS AND FOREIGN WHEAT.—The question of the wheats currently milled in Budapest was lately brought up in the Hungarian House of Deputies. On the 15th ult. a member regretted, during the course of a debate on the Budget, that the mills of Budapest no longer confined themselves to native wheat, and had come to grind much foreign grain of inferior quality. This statement was at once traversed by Deputy Wahrman, the reporter of the Budget, who declared that he could not allow a statement so misleading, and so calculated to depreciate the value of Hungarian flour, to pass unchallenged. One fact alone would preclude the idea that Budapest mills now habitually ground wheat of inferior quality, and that was the universal favor in which the flour was held, a favor which, he made bold to say, had in the last few years been on the increase and not on the wane. Admitting that a certain quantity of Servian and Roumanian wheat found its way every year into Hungary, these stocks had been shown to be no more than the seventh of the flour exports of the country. As a matter of fact the greater portion of this foreign grain was never reduced in Hungary at all, but was merely warehoused pending its export to other lands. Their country was now, thanks to its railway system, becoming the storehouse and distributing agency for the trade of Eastern Europe, and it was perfectly natural that much grain should be received on its way west. Personally, he believed the Budapest and other mills of Hungary used less foreign wheat than ever, and he concluded by remarking that what non-native grain might be used could not be supposed to injure the quality of the flour, inasmuch as the Hungarian millers were notoriously adepts in the art of blending, and might be safely trusted to manufacture high-class flour from wheats which in less skilled hands might give only second-rate results. In his opinion, it was precisely this mastery of the art of mixing that had placed Hungarian milling in the front rank, and had elevated it beyond the reach of competition.

DEATH OF S. S. MERRILL.

Since our last issue the General Manager of the Chicago, Milwaukee and St. Paul Railway died at his residence on Grand Avenue, in this city, after a long illness. The universal sorrow expressed at the death of Mr. Merrill, and the marked respect shown at his funeral, evidenced the high estimation in which he was held.

For many years he had been the general manager of the most extensive single railway company in the world—a railway owning fully 5,000 miles of road. To that high position he had risen from being comparatively a common laborer, passing through the grades, of brakeman, conductor, etc., until the entire general management was entrusted to him. His skill and thoroughness, his real capacity for such a responsibility, was manifested in the success that attended his efforts, in the freedom from accidents, its almost perfection, through the ceaseless care and personal inspection of Mr. Merrill, whose tireless energy and sleepless vigilance has hardly a parallel.

It might be said of the St. Paul Railway, as it is of the Cunard Steamship line, that it never cost a life or a letter during its long career. Of the railway under the supervision of its deceased manager, it can be asserted that it has never sacrificed the life of a single passenger through criminal carelessness; nor was this state of things due to chance or luck. With Mr. Merrill it was duty to seek the welfare of the Company; to this end all his energies were bent. He knew and did nothing else than to strive, early and late, with incessant care, to guard the interests and further the welfare of the Company that had placed its entire management in his hands. His efforts were amply rewarded in the success that attended them and the high character borne by the road for safety, security and dispatch. Mr. Merrill "died in the harness." He sacrificed his life in the service of his employers. The Company may well say, "Well done, good and faithful servant," and the public, not only of Milwaukee, but of Wisconsin and the other States traversed by its tracks, echo the eulogium so well deserved. Mr. Merrill's idea was to secure security and safety through strength, and in the fulfillment of that purpose was largely due the wonderful success of the St. Paul Railway. How absorbing this idea was in

the man whose death so many regret, was singularly but forcibly illustrated during the last time Mr. Merrill ever drove out in his carriage. He attended the sham battle at the Cold Spring race course last August. There was an immense attendance. The grand-stand was packed with spectators, every inch of space being occupied. The appearance of Mr. Merrill, who had been ill for some time, was the signal for a spontaneous rising of a dozen people to offer him their seats, and he was forced into one against his will. He remained seated but a few minutes, when—entirely characteristic of the man and successful manager—he feared that the grand-stand might not be sufficiently strong to support the great weight upon it. He left it and wanted an examination made immediately, fearful that some accident might result; nor would he rest content until assured that it had been carefully inspected and pronounced safe. He over-exerted himself that day, and never recovered from the effects. On another occasion, when contracting for some passenger cars, he stipulated for such heavy ironing of them that the builders were astonished at what to them seemed folly. Not long after their delivery and use on the road, two of these cars were derailed and rolled down a steep embankment, turning over twice in their descent. They were replaced on the track again unbroken, and the passengers were scarcely injured. When the dispatch relating to the accident was received by Mr. Merrill and announcing the safety of the passengers, he exclaimed: "There—is the benefit of having good strong cars. Had they been common ones we should no doubt have had several passengers killed." He was overjoyed at the result of his own good judgment and foresight.

In the death of Mr. Merrill, Milwaukee has lost a citizen who for a third of a century has been identified with her interests and always faithful to them—a citizen she could ill afford to spare and whose death she deeply mourns.

In a recent interview with Mr. Porter, of the L. C. Porter Milling Co., of Winona, Minn., Mr. Porter said:

"During the past three years especially I have made, and had made from many sources, experiments on the various kinds of wheat and flour produced. These investigations have been so practicable and convincing that I have fully adopted the hard Fife variety of wheat for milling, which contains from twenty to fifty per cent. more nourishing gluten substance than the soft varieties of spring and winter wheat. As to the climate, soil or locality, there is no soil or climate so peculiarly adapted to this nutritious wheat as Minnesota and Dakota. The gluten contained in the hard Fife wheat being so great over all others, I was induced to put out for seed last spring over 20,000 bushels of this kind of wheat for special milling, and intend to furnish the farmers of Minnesota and Dakota from 40,000 to 50,000 bushels the coming spring."

There are very few persons who know the value of a rich glutinous flour over a white, starchy flour containing less nourishment and not as profitable for the consumer.

THE San Francisco *Journal of Commerce* published its annual review of business on the Pacific coast, from which we extract the following in regard to wheat:

Of the hundred millions of acres especially suited to wheat culture found on the Pacific coast of the United States, California has the largest proportion—twenty-five million acres, or one-fourth of the whole. Oregon comes next, with eighteen millions. Washington Territory is given sixteen millions, Colorado and Idaho ten millions each, Montana and Utah eight millions, and Wyoming five millions. California is thus the banner wheat state of the West, and in 1880 and 1884 produced more than any other state or territory. Owing to careless cultivation, or rather to lack of proper cultivation at all, and to occasional droughts, the average production has been reduced to about sixteen bushels per acre. Twenty, however, is the average of good land, with any ordinary care taken in cultivation, while the yield is not infrequently thirty, forty, fifty, and it has even ran as high as sixty bushels per acre. In fact, quite a respectable proportion of farms returned sixty bushels per acre as the average of 1884. And this all comes without the use of fertilizers of any kind.

The heart of the wheat lands of the Pacific is found in California, in the Sacramento and San Joaquin valleys, where there are fully thirty million acres of land—twenty million of the best wheat lands in the world. The soil is of two classes—adobe and loam. The former hold moisture and produce crops when other soils are almost useless from drought. The loams are light and friable, and in ordinary years superior to the adobes. Both are found all through these vast plains—the loam being found mostly along the

river and creek bottoms. Some of these soils are practically inexhaustible, yielding thirty to fifty bushels per acre for twenty years, and that without the use of fertilizers. Not to speak of the thousands of fertile coast valleys, there is here, inclosed by the snow-clad summits of the Sierras and the blue peaks of the Coast Range, a mighty empire, which can support, in years to come, its teeming millions.

THE RUSSIAN CANAL SYSTEM.—The magnificent canal system possessed by Russia is not generally known. All the great rivers are interlaced by spacious artificial waterways, the magnitude of which may be estimated by the fact that several thousand barges, many of more than 1000 tons capacity, make their way every navigation season from the Volga to the Neva. The cost of maintaining the waterways in a good condition is by no means small, and every year a special sum is usually allotted for improvements. This year the amount will be 2,224,000 roubles, or 225,000 sterling. Of this, 67,000 is to be expended in constructing canals connected with the rivers Vitigra and Kovji, 15,600 in improving the River Vitigra itself, 25,000 in improving the River Volga, 21,500 in embanking the River Dnieper below Kieff, 8000 in rectifying the course of the River Pripet, 20,000 in improving the River Dniester, 12,000 in improving the River Vistula close to the Austrian frontier, and 22,000 in surveying various parts of Russia for new canals. Three years ago General Tchernayeff, then Governor-General of Turkestan, reported to the home authorities that the communications of Central Asia might be considerably improved by the appointment of a well-boring corps to open up wells along the road in the provinces ill-provided with water. He pointed out that many districts in Central Asia bore wrongly a bad reputation as "waterless;" asserting that they were simply "well-less," and affirming that if wells were sunk in different directions the supply would prove amply sufficient for the wants of the country. His recommendation was acted upon, and since then Government engineers have been busily engaged sinking artesian wells. According to a telegram from Tashkent this week one has just been completed in the "Hungry Steppe" between Tchinez and Djazak, 434 feet deep. The water, on being struck, rose to within 50 feet of the surface, the usual depth of wells in the steppe, from which it will be pumped by a small wind-propelled apparatus.—*Engineering (London)*.

DEPRESSION IN THE ST. LOUIS FLOUR TRADE.

The *St. Louis Republican* of Feb. 16 says: Two weeks ago the flour trade in St. Louis was booming; there was a good foreign demand and a heavy inland trade; the prospects were brilliant for a good season and millers began to work full hours. Flour had reached the bedrock of low prices during closing days of 1884, and it was thought that lower prices were impossible. The brisk upward movement that set the wheels going for a while was of brief duration; a strong decline set in and the bottom fell out of the entire flour trade. As a consequence, nearly all the mills in St. Louis and vicinity are shutting down, and it is safe to say that by Monday not a single mill owned by members of the Exchange will be running full time. Various explanations are given by prominent millers, but the situation seems to be as follows: The foreign demand has ceased entirely, and domestic buyers are taking only so much flour as they actually need—are buying from hand to mouth. There is, consequently, no possibility of disposing of flour even at cost and as consumers, seem to think that present prices will prevail until the new crop comes in, the most sensible thing to do is to shut down. Some millers attribute the whole difficulty to the extremely cold weather now prevailing, by means of which all communication is shut off. The millers, speaking generally, say that everything is too cheap, and that if wheat to-day was worth \$1, business would be better all over the country. It is impossible to sell the flour at a profit at present, they say, and hence they might as well wait until the prospects become better. One large milling firm said they received a large cable order recently, but declined to fill it because it left no margin of profit.

THE REV. JOHN E. TODD, of New Haven, Ct., says that the average college student at the time of graduation can no more write good English than he can read Greek, and knows about as much of the history and institutions of his own country as he does about the Latin authors of the Lower Empire. "Wholly unfitted for real life, as well by his training as by his habits, and unable to read any literature with ease and pleasure, he finds that, like a boy with the measles, he has something which nobody else wants, and which is of no use to himself. His best course, if he means to become a man, is to forget as fast as possible the most of what he has learned, and to make up for lost time as best he can."

[Furnished for the UNITED STATES MILLER.]

THE TARIFF.

EXTRACT FROM A LETTER TO A UNIVERSITY STUDENT, ON THE AMERICAN PROTECTIVE TARIFF.

MILWAUKEE, Feb. 12, 1885.

My Young Friend:

In reply to yours, as to the "trifling character of some of the statements of Protectionists," that "trifles are too much dwelt upon"; that "great principles are ignored or lost sight of in the discussion of, and in debating of the tariff question," etc., etc., I acknowledge that our protective tariff question is too often treated in a light and flip-pant manner, as if the industries, and manufactures, and the employment of the labor of the country were but trifles of but little importance.

And yet, our American free traders must deem them of vast significance to England, or they would not labor so hard in unison with the Cobden Club, to get them transferred to England. They are not trifles. They are the pivot wheels upon which our nation has moved and run so prosperously.

The farms, the mines, the furnaces and the factories are the foundations, the sources—in truth, the fountains of our national prosperity.

To some they may appear as "trifles," but to others as "confirmation strong as Holy writ."

If you have read the lectures of Rev. Morley Punsheon, you, perhaps, will remember the passage where, addressing young men, he said on this subject of trifles:

"A trifle! Yes! but are not these trifles sometimes among the mightiest forces in the Universe? A falling apple, a drifting log of wood, the singing and puffing of a tea-kettle. Trifles all—but set the royal mind to work upon them, and what becomes of the trifles then? From the falling apple, the law of gravitation; from the drifting of a log of wood, the discovery of America; from the smoke and song of the tea-kettle, all the hundred appliances of steam."

Now, my young friend, let us see how "trifles" may have affected us—let us trace out a few facts. From that floating log, pointing the way to the shores of the American continent sprang the English colonies, their settlement. After many years, their grievances, called "trifles" by the King, Lords and Commons (not all of them) of England, Then the enunciation of the colonists' ideas of political rights—"Life, Liberty and the Pursuit of Happiness,"—words defiantly dashed in the face of despotism, in answer to the denied "trifles" claimed by the colonists, to make their own hats, clothing, hob-nails and to slit their own iron. Then came revolution. Then the trinity of Faith, Hope and Charity played their part—Faith inspired the colonists to declare war for human rights; Hope sustained them during their long and trying struggles and sufferings through the American Revolution; and when independence was achieved, Charity—God-like Charity, inspired them to make this country a city of refuge, to which the persecuted and oppressed of all lands, who sought permanent homes, could flee, and to which, as Mr. Bright said, twenty years ago, upwards of two and a half millions of British subjects have emigrated in fifteen years, every one of whom, Mr. Bright says, have attained a prosperity here, they could not have obtained in their native country.

My young friend, your conclusions are the natural results of erroneous tuition—errors that will be removed when you have contended with the practical in human life; when you have confronted the realities of the world, in which you must rise or fall—sink or swim, as your practical efforts will elevate or depress you.

You quote to me the statement of a gentleman, who, speaking of our protective tariff said:

"It works harm to the very interests it pampers. All students, teachers and philosophers not warped by interest condemn it. It is a relic of barbarism—a notorious wrong."

It would be difficult to crowd more error into the same space. It is the language of charlatanism, void of fact. No nation has progressed industrially as the United States since the tariff of 1861, and we are now the greatest manufacturing country in the world, having beaten England in a single year more than a thousand millions of dollars in products. "America is passing us at a bound," said Gladstone in his "Kin Beyond the Sea." Mulhall, the great English free trade statistician, says: "Every time the sun sets on American soil, there is \$2,500,000 added to American wealth, more than one-third of the increase of the wealth of the world." John Bright says: "America is the home of the working man," and, "labor is there honored more than in any other country." The president of the Cobden Club bears his evidence to the "sober industry of our people," our "devotion to peace," and that, while in this country, "he regained confidence that the English race was destined

to lead the van in progress." Lord Coleridge, England's Chief Justice, after viewing the condition of our people, etc., "that our artisans owned their own cottages," etc., etc., that he "would never see the like in his dear old England," exclaimed with fervor, "What a state of satisfaction and content in time of peace! What an irresistible force in time of war." Coleridge is a member of the Cobden Club, eminent as a lawyer—a profession the most highly protected in the world. Perhaps you, or the gentleman you quote, can point out how either of those persons I have cited is "warped by interest"; or wherein it is just or even truthful to pronounce our tariff a "relic of barbarism." Is every civilized country in the world retrograding to "barbarism"? All have recently passed tariffs and of all nations England has the highest on several articles of foreign make. Is our democratic, free-trade Senator, S. S. Cox, of New York, who recently introduced a bill to restore the tariff on ready-made clothing—because its lowered grade had brought want—almost starvation, to several thousand cloak makers in New York city—wives and daughters of his constituents—is he a barbarian? Was Hon. Geo. L. Converse of Columbus, Ohio, a prominent democrat, "barbaric" in his efforts to restore the '67 tariff on wool? Are Randall and Voorhees and many others, all democrats, are they barbarians?

I call your attention to these facts to refute the foolish flippancy you quote. It is one of those "clamors with which demagogues love to thrum our ear drums"—a sort of frothy frescoing of other people's statements, fit only for simpletons, who, like young birds in a nest at the slightest sound open wide their mouths and swallow whatever is given them.

The world is made up of trifles—in fact is but an aggregate of atoms, material and human. The greatest danger to which a young man can be exposed is that of wrong tuition. It often makes them "aliens" in sentiment, instead of Americans in fact. I quote to you what I have often publicly said:

"This government was formed in violation of all known governmental precedents; from no known hypothesis nor from any professor's brain was it born. It was simply and solely the practical application of human rights, under human protection, to human beings." Referring to professors, etc., teaching free trade in colleges, etc., to advance the interests of a foreign country more than our own, I said: "A charitably disposed mind may leniently judge the efforts of foreigners to destroy our industries in striving to benefit their own. American patriotism is severely taxed when asked to condone the crime, or mitigate its condemnation of the efforts of American born or naturalized citizens, when directed to the injury of the interests of their own country for the advancement of foreign countries. To trust the tuition of our youth to such persons is a misfortune if not a national calamity. An ordinary American citizen, teaching an American boy that his first, or equal duty, is to other than his own country, commits an almost unpardonable error; such an instructor may plead ignorance in palliation. But when a preacher, college or university president, a professor or school teacher, one trained, taught, and paid to instill sound principles into the minds of young Americans, to inspire love of country, desire for the promotion of the general welfare of his own country and people; when such a one teaches that our youth should be as ardent for the promotion of the welfare of another country, sometimes more so than for his own; that man, be he who he may, is guilty of high treason. He, I say, is unfit to teach American youth; he is un-Americanizing them; he is destroying the *amor patrie* of our youth, our rising generation: those upon whom depend the perpetuity of American liberty and free government. If the political economy taught by many professors in American universities, colleges, and schools,—that American legislation should be as solicitous for the prosperity of England, and as desirous of promoting her welfare as for the prosperity and promotion of the welfare of our own country,—is correct, then I say the declaration of independence was a political paradox, a fulsome fulmination of fools, and the bloodshed in the American revolution was an inexcusable, wanton, wicked sacrifice of human life."

Has it never occurred to you, that the aim of the British freetraders, as represented by the Cobden club of England, is the destruction of all American industries and manufacturers? Do they not announce they will "never rest while the United States are unsubdued." Do you desire to aid such a result? Do you realize that the success of the freetraders, of England and America, would certainly produce that result? I ask you, I entreat you, to read the history of our own country, carefully, thoroughly, not superficially. If you do so, you will, I think, agree with me, that all of our greatness, freedom, happiness and prosperity, is substantially due to the grand humanity upon

which our government is founded: to the development of American raw material, the encouragement of American manufacturers and the protection of American labor.

Faithfully Your Friend,
JOHN W. HINTON.

NASHVILLE MILLING NOTES.

There is considerable gratification to the millers of our city in realizing the fact that although business is remarkably dull almost entirely throughout the Northwest, that our mills are kept actively engaged at full capacity to supply the demand throughout our Southern territory; and it is a warrantable fact also that the qualities must be equal to all competitors, by the constant demand for our mills' products, considering that a vast amount of outside flour is constantly arriving and running indirect competition with them.

Nashville naturally looks with pride on all her industries, and justly so indeed toward the producers of the product which gives us the "staff of life" in all its purity, viz., good flour.

The Lanier mill drives ahead under full sail, with no mention of dull times, while the Nashville still continues to hum constantly under the cheering ejaculations of our irrepressible John J.

Up the line E. T. Noel's mill continues to impart music to the busy board of operatives in response to orders constantly pouring in.

Still further on, the New Era lies, as it seems, asleep; but within, the busy hammers and saws of many millwrights can be heard, hurrying (almost against time) to prepare her to again join the ranks of her companions in the production of flour.

She is being refitted to a full roller mill, and anxious eyes are directed toward her completion, and a very short time will see her again in operation. Most of the machinery has arrived and is being placed in position, and Mr. Case (who has the contract) thinks that few mills in the country will surpass her in excellency of milling products.

The City Mill is also running on full time, and although she is now a buhr mill, rumor has it that at no distant day Brother McIver thinks of joining the ranks of roller mills, by having the "City" built over to the full roller system.

Still further might be mentioned that in the near future Nashville will awaken to the fact of the existence of a new corn meal mill, operated under the roller process entire. The writer is familiar with the facts as far as they are presented, but withholds the names of the projectors until permission is given for publicity. Suffice it to say, figures have been presented in the enterprise, and further developments are awaited.

Undoubtedly the undertaking will prove successful and profitable from the start, as it is one that is much needed in the South, where the best corn in the country is grown, and where also people have formed an attachment for the use of the meal in bread in various forms. The roller process on corn produces meal very different to that made by the use of millstones as now employed.

The object is to relieve the corn of all its bran and germ by first producing hominy, then reducing said hominy to grits by several reductions on rolls. The flour produced in reducing is removed by the aid of the bolting reel or centrifugal, and the grits are further cleaned by the aid of purifiers. The process resembles very much the same as employed in gradual reduction on wheat, though of course not requiring so much manipulation, as the aim is not to produce flour from the corn, but nice sharp granular meal.

Our friends at the Shamrock mills are also awakening to the roller process, and a possibility remains that ere long all of Nashville's mills will be roller mills.

Messrs. Williams & Co., of this city, have sold in the last three days 190 car loads of wheat, 500 bushels to the car, making the enormous sum of 95,000 bushels. This is the largest transaction in grain that has ever been recorded in this market in any three days, and speaks well for Nashville, and shows that she is becoming one of the leading grain centers of the country; and with the live grain dealers in the Nashville market, the farmers and grain dealers in the country can send their grain to Nashville with the assurance that they can always find a buyer.

It is announced that the Rizer mill property at Franklin, Tenn., is to be sold soon.

This is a new and splendid mill, constructed after the best models, patent roller process, and every equipment found in a country mill, and some one or some company will get a bargain and make it pay them for the investment.

It cost originally about \$30,000, and consists of a four story and a half mill, two commodious warehouses, a private side track

to the mill and warehouses, and about three acres of land.

It is to be sold by the Chancery court for the benefit of parties interested.

Our enterprising elevator men have recently added to the elevator a device for drying for damp wheat that may come to the elevator storing. The process is patented by the Chase Elevator Co., of Chicago, and this is among the first to be erected. Mr. Talmage is here now experimenting and operating with it to render it perfectly effective in all its requirements (Talmage is the Chase Elevator Co.'s agent), as upon its success hinges the immediate erection of various others throughout the country, particularly in the North and Northwest.

As far as the operation of the process has been developed it seems to have rendered satisfaction, and it is anticipated, especially by our Nashville parties, that in the event it is eminently successful it will prove of incalculable value to both the patrons of the elevator and the company.

The wheat supply for the mills continues ample for the demand, the principal bulk of which arrives from Kentucky, and the stimulus added to the market in its upward tendency has the effect of making the holders of grain ship in large quantities, thereby gaining the advantage of the rise, however premature the upward tendency may prove. —By ROCK CITY in Southern Miller.

SMOKE.—"Smoke," an engineer said to me the other day, "is due primarily to free carbon. This escapes unconsumed from the fire and stains the aqueous vapor that arises from the stack. Yes, I'm inclined to think that much of the smoke complained of in large cities could be done away without any changes anywhere except among firemen. The great mistake of manufacturers is that they place a coal-heaver and a fireman on the same dead level of value. Instead of hiring competent and intelligent firemen at good wages, they will take almost any man that offers his services at poor house figures, and who has strength enough to shovel coal. This class of employees is the dearest at any price that ever worked in a manufacturing establishment. To give you an idea: Not long ago a local manufacturer sent for me to come and see what was the matter with his boiler. I went down and found that they couldn't raise more than forty-five or fifty pounds of steam. There was nothing wrong with the boiler, so I went to the fire. Here the whole thing became plain to me. The fireman had overloaded his fire and ruined the draft. I told the proprietor he would have to shut down, to which he gave a reluctant and very profane consent. I drew out the fire, built another one, and when we blew off, the boiler was carrying eighty pounds of steam, more than was really needed. This is only one of a number of instances I might point out from personal knowledge. Really, I wouldn't want a better thing than the privilege of firing all the boilers in St. Louis and Chicago at fifteen to twenty per cent. below the present cost to manufacturers, the firemen to be selected by me or my representatives.

"The main point in striving for perfect combustion is to ignite and consume the carbonic oxide. First, we burn the carbon, and next we should consume the carbonic oxide, leaving carbonic acid. This can only be done by introducing hot or atmospheric air (the former preferable) into the gases, so as to produce the second or after combustion." —Quidnunc in St. Louis Age of Steel.

PORCELAIN ROLLS.

In 1874 porcelain rolls were introduced in German mills by their inventor, Frederick Wegmann, formerly of Naples, Italy, and now of Zurich, Switzerland. They effected a great revolution in milling. Porcelain rolls are now used all over the world where fine grades of flour are made. *Die Muehle* says that Wegmann was also the means of bringing into use the system of roller milling with chilled iron rolls. Ganz & Co., of Budapest, the largest manufacturers of milling machinery in Europe, manufactured and sold chilled iron rolls, under Wegmann's patent, for a considerable length of time.

"Chilled iron or porcelain" for rolls has been a question for extensive discussion, but now each has found its appropriate place. Chilled iron rollers, corrugated, do excellent service for producing middlings, while porcelain rollers are unequaled for the reduction of middlings. In recent legal proceedings before the German Patent Office, the Court said: "It is well known that the introduction of Wegmann's porcelain rollers has been of great advantage to the German milling industry, and the advantages derived from their use are so great that the loss inflicted upon Germany on account of their manufacture in foreign lands cannot be estimated." A higher compliment could scarcely be paid to the distinguished inventor.

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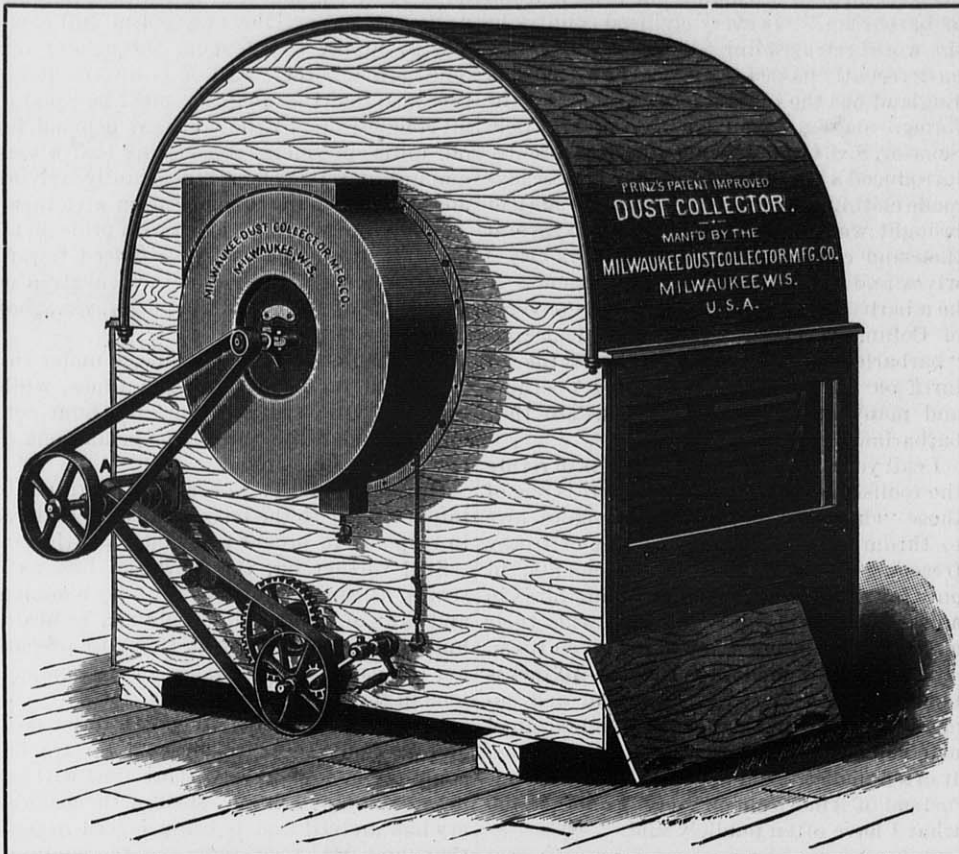
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MILL DIAGRAMS.

The diagram which shows graphically the course of the stock in the mill, i. e., the various reductions and separations, has made its appearance, in a common way, to the millers of this country since the introduction of the purifier. It was the purifier which complicated milling. The purifier increased the number of reductions and separations in a mill where the wheat merely passed through the burrs and a reel sent the flour to the packers from one end and the feed and the middlings from the other, to an almost endless number. According to the older system it was possible to describe the run of the stock in the mill, in a very few words, without the danger of being misunderstood. Now, if a mill-furnisher desires to explain his method of reductions and separations to a miller, he elaborately pictures his ideas on paper, and it takes time and skill to do it. He explains the diagram to the miller, who ponders over it, and perhaps understands it and perhaps not. The diagram is the vehicle of the thought of him who would arrange the reductions and separations. It shows the number of rolls and the millstones, and states their size and dress; it shows the course of the stock, and indicates its quality in the separators; gives the classification of material, the clothing of the reels, the course of the conveyors, and all matters pertaining to the movements of the stock. If a miller wishes to make changes in his milling, it is not now so common a thing for him to walk through the mill and tell somebody how it is to be done, stating that the stock from this reel will go into some other which he points out, and so on, or that he will change the stock from one roll to another. He goes to some quiet place, determines what he wants to do, and draws out the course of the stock on paper, thus forming a record of his ideas for the guidance of his employees. This is an intelligent way to act, and is the course adopted by many millers whom we know.—*The Modern Miller.*

THE OATMEAL INDUSTRY.—All the oatmeal mills in the country, said a gentleman at Des Moines, Ia., the other day, are running slack just now because this is what is considered the slow season of the year in the business. Just now the product is being run down as low as it is possible to do it. But it is not a bit more quiet in the trade than at this time last year. It has been reported in the papers that a combination has been

formed to raise the prices. This is a mistake to some extent. The meeting which has been referred to was a meeting to organize for the same purposes as the other millers have organized, and also to equalize prices over the country. The process of equalization will not increase the price of meal at Des Moines, and may reduce the Ohio prices slightly, and also increase slightly at other points. Our mill has a good western trade, and we are just now loading a car for the mountains. A car, in barrels, is worth about \$500. The manufacture is comparatively a new thing in this country. At the close of the war a little Canada oatmeal was sold in the East. The Shoemakers, of Ohio, were the pioneers, and went into the manufacture heavily. Twelve years ago there was not an oatmeal mill west of Ohio, and now they are everywhere, so the product has grown cheaper each year. The export to foreign countries has increased right along, but it is not very profitable, and I think is not pushed except when the home demand falls off, or the production is too heavy. Foreigners don't buy this or anything else as Americans do. If the price is a cent higher than usual they don't take it, while in this country if a man wants a package of meal he buys it at once without asking the price. We look for a fair business through the coming season. The stocks are nowhere very heavy, and the demand is increasing right along, as it ought to, for it is the finest food in the world for many people.

STOCK BROKERS MUST NOT DRINK WHISKY.—"Men who drink whiskey are sure to go to the wall sooner or later on the street" is the testimony of Henry Clews, the Wall street broker. Men in the stock business have excitement enough without any artificial exhilaration by the use of alcohol. I have no objection to a glass of wine at dinner. No man should drink in business hours. In the long run whiskey will ruin a man physically and financially. Too many men on the street drink to celebrate their success and to drown the memory of their reverses. There is no other time when a man needs all of himself as much as when he has been unfortunate. Then, if at no other time, he should eat the best dinners, attend the opera or the theatre, and keep himself in the best spirits and health possible. But keep clear of the bottle! I always win when I have whiskey for my competitor."—*Philadelphia North American.*

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WHERE THE GRAY NOISELESS ROLLER MILL IS MADE.

It is hardly necessary to inform any interested in the milling trade that the world renowned Gray roller-mills are manufactured by the well known firm of Edw. P. Allis & Co. of Milwaukee, Wis., but many have but a faint idea of the great amount of capital invested and works performed at their roller-shops or the great number of roller mills built by them, roller-mill building being only a branch of their manufactory. The fine illustrations presented herewith, will give our readers a good idea of the extent and importance of this roller-plant, which was originally called and is still spoken of as the Bay State Works. The main building is built of Milwaukee brick, is 260 feet long by 50 feet wide, and is three stories high; adjoining it is a one-story frame building 250x50 feet, used as a finishing shop and warehouse.

Passing through the main entrance and by the office, the visitor enters the first floor. Here the roller mill frames are brought from the foundry and are fitted for receiving the wooden hoppers and the minor details of iron work entering into the construction of the machines. This floor is well equipped with special tools, each designed with a view to doing a maximum amount of work with a minimum amount of labor. Special lathes, planers, drilling machines, etc., are all kept busily at work under the careful attention of skilled mechanics, each especially trained to do his stated share of the work of building the complete machine. On this floor also are found the special tools required for turning, grinding and corrugating the chilled iron rolls which are the prominent feature of all roller mills. Messrs. Allis & Co. have but recently turned their attention to the manufacture of the rolls themselves, and the works are not fully equipped with lathes for turning the chilled rolls. But a very small portion of the rolls are made here, the greater portion coming from Ansonia and Wilmington. The outfit of grinding and corrugating machines is the largest in the country outside of the shops making a specialty of furnishing rolls only. The grinding and corrugating tools are of the latest and most improved pattern, and the works have abundant facilities for handling not only their regular work, but also the large and growing roller repair trade. All possible pains are taken to insure perfection in workmanship, the result being that rolls are sent here to be refitted from all parts of the country.

Ascending to the second floor, the visitor sees long lines of lathes planers and drill presses, and the whole room thronged with busy workmen. This floor is devoted entirely to the fashioning of the smaller pieces of iron work required to complete the machine. Hand-wheels, bolts, rods, levers, feed rolls, boxes, etc., each have their appropriate machines. On this floor are also the lathes and grinding machines for fitting the Wegman's porcelain rolls, for which

Messrs. Allis & Co. are sole agents in this country.

The third floor is occupied by the pulley lathes and grinding machines, and is used also as a store room for finished pulleys and other small parts of the machines. The whole building is now and has been for the past five years as busy as a bee hive, the

there been a single machine in stock, all being called for on orders as fast as completed. At present, notwithstanding the low prices of wheat and consequently depressed condition of the milling industry, the shops are over one hundred machines behind orders. First and last, during the past five years nearly fifteen thousand machines

WHAT THE SOUTH NEEDS.

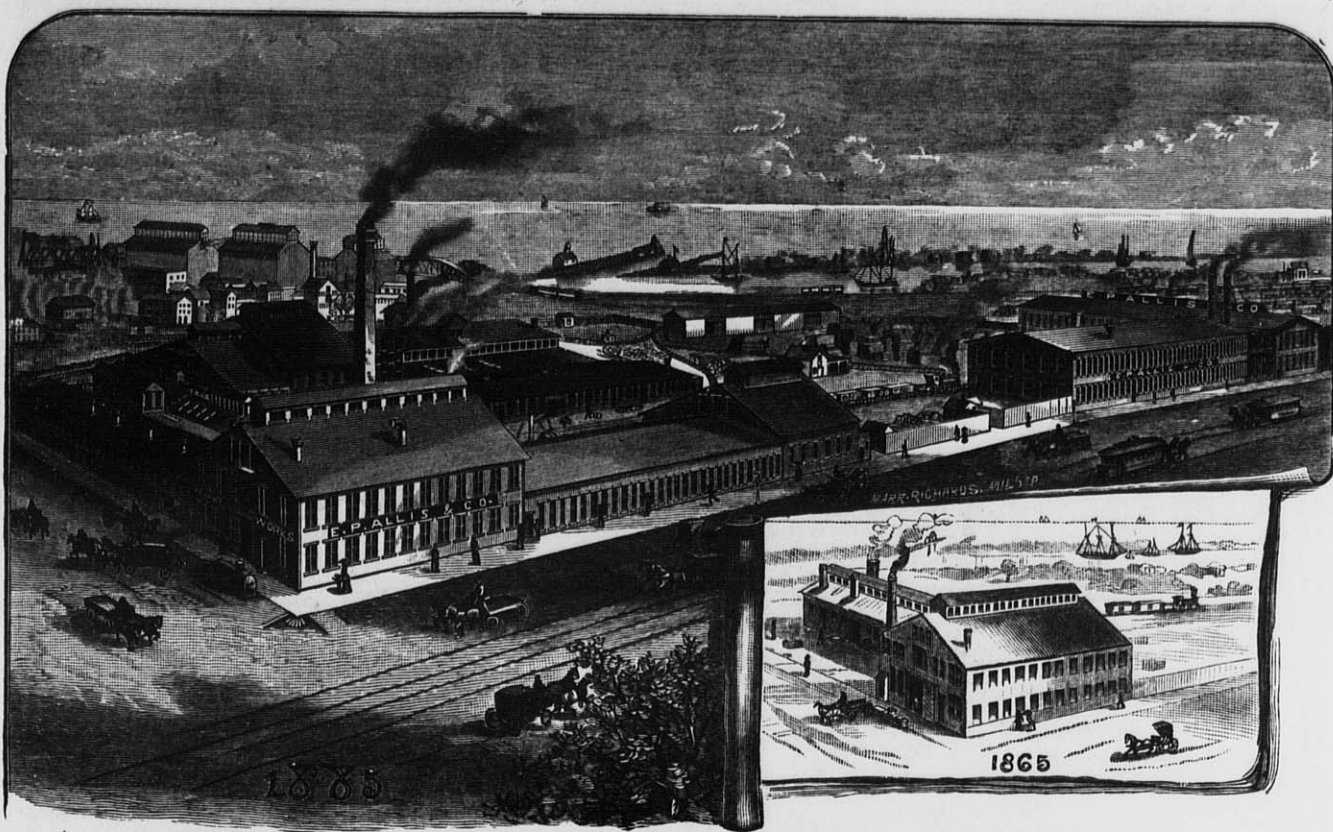
What the South needs is not to crow and boast over the comparative trifles our people are now showing in the industrial system. We need a diversification of industries to enable us to meet our home market, first of all. We don't make one ton in forty of the iron articles of utility our people use. We make none but the coarse grades of cotton and woolen fabrics, and those grades our mills have overdone to the point that they were forced to cut their labor 10 to 15 per cent., which was never at best, paid as much by 20 per cent. as average Eastern wages.

We don't mean to say the South has not done well since 1870, from which year her industrial history dates. But it would be dereliction of duty not to correct the erroneous and highly injurious notion being instilled into the people's heads, that this section is on the eve of becoming master of the iron and cotton goods markets of the country, when we have only a few fine furnaces, very few iron mills, and a total spinning plant about equal in capacity to that of a second-rate New England factory town. Tell the people what they can do with their magnificent supply of raw materials. Tell them what they must do before they cut any considerable figure in the industrial world. Do not, we pray you, eloquent but ignorant editors, try to persuade the South that she has become the prime factor, when her industries are yet extremely crude and by comparison a mere fraction of the great mass. The fact is, the South is in no sense competing with the iron and steel "mills" of the East and North, and only competing with their furnaces in a feeble, accidental and profitless way.

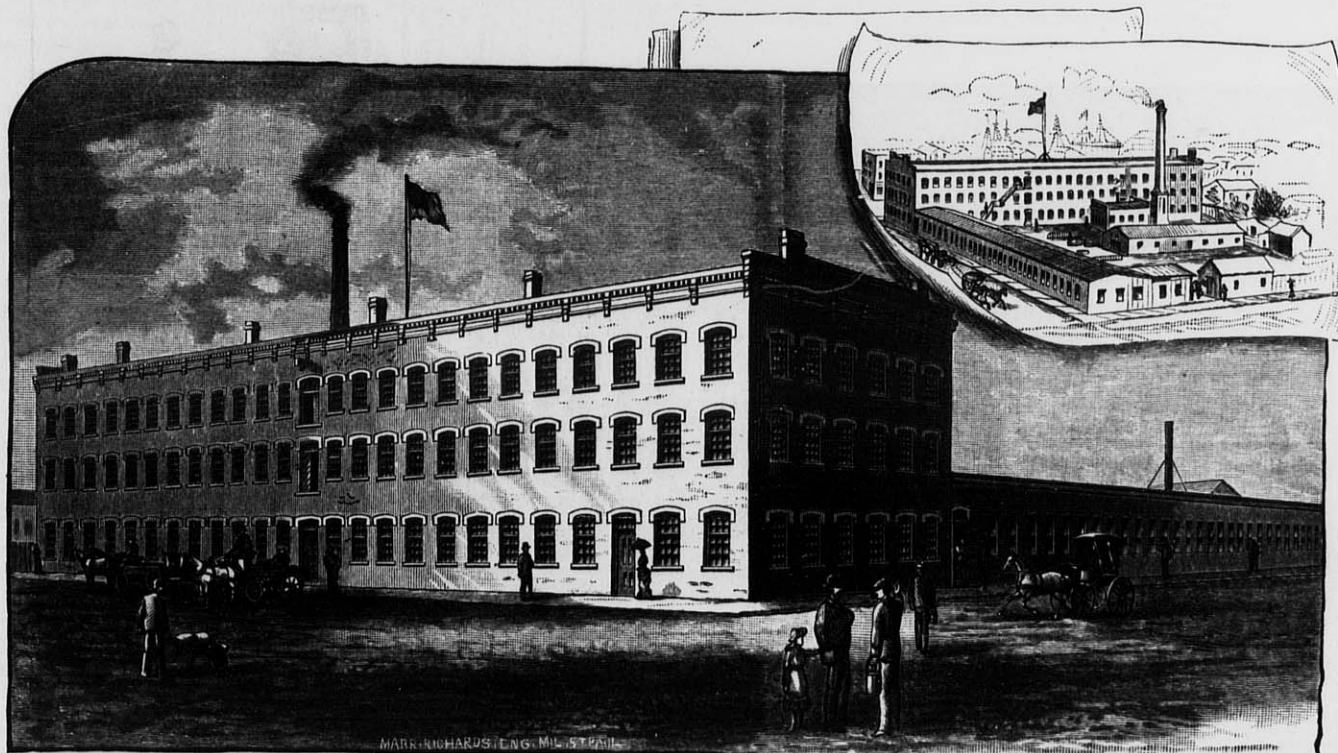
Our cotton goods do not come in competition with one yard in fifty made in Eastern and Middle states mills. It is time our enterprising people knew the facts of this situation. Pennsylvania and Ohio have more coal than the whole South. They own the only large beds of ores yet developed suitable for making steel by the Bessemer or open hearth process. If we were to close a few of their furnaces and go on buying their finished iron and steel we would get rich mighty slowly. —*Chattanooga Times*.

ONE of the duties of Judson Macumber, an intelligent colored man employed in the Austin, Texas, postoffice, is to cut a daily supply of kindling wood for the stoves in the building. A few days ago the supply was short. "Why don't you chop up two or three days supply of kindling wood, so we can always have some on hand?" asked Col. Degress, the postmaster. "No, sah, I don't cut up no kindlin' wood for the day ahead. We am liable to hab our heads chopped off any minute, and I don't hab no kindlin' wood in the cellar for de democratic niggah what gits my place."

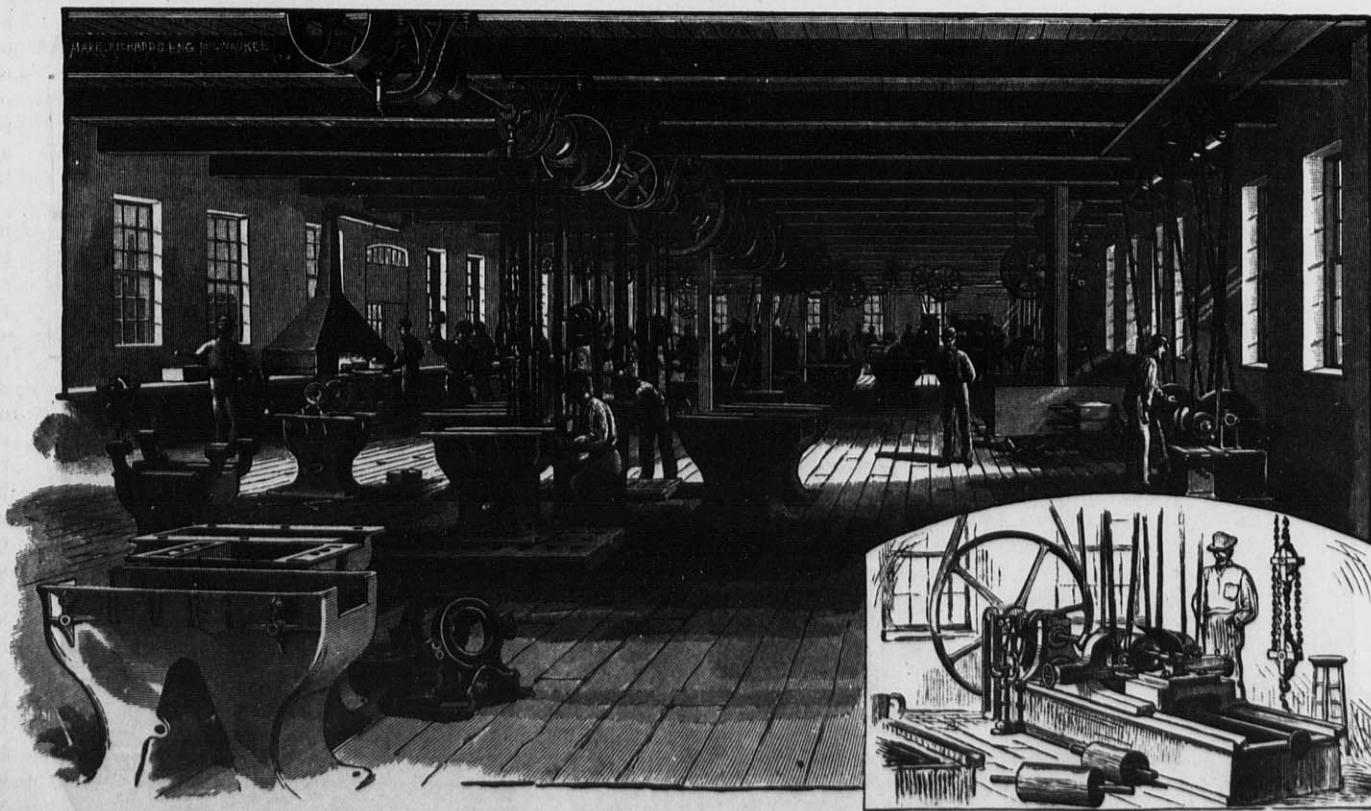
The Workingman's Journal at Muskegon accuses a flour and feed firm there of having a very valuable cat, which steals onto the scales and remains there until the grain has been weighed.



RELIANCE WORKS, MILWAUKEE, WIS., AS SEEN FROM CORNER OF CLINTON AND FLORIDA STREETS.



E. P. ALLIS & CO.'S ROLLER SHOPS, MILWAUKEE, WIS.



E. P. ALLIS & CO.'S ROLLER SHOPS.—FIRST FLOOR.

working forces averaging over two hundred trained mechanics, working solely on the Gray roller mills. Passing out of the main building on the first floor one reaches the finishing room. Here the machines are fitted with the necessary wood-work, the feed-rolls and other small parts put in place, and the machines painted and prepared for shipment. At no time during the past three years has

have been built and shipped from these works going to all parts of America, as well as to England, Australia, New Zealand and South America. Taken as a whole, the Bay State plant fairly illustrates the magnitude of the milling industry, and is an object of interest to millers from all parts of the world.

for the day ahead. We am liable to hab our heads chopped off any minute, and I don't hab no kindlin' wood in the cellar for de democratic niggah what gits my place."

A SURPRISE IN A BOILER FLUE.

It is not often that surprises are met with in boiler flues, and the following incident which occurred to an engineer whose name has since, through his numerous inventions, become a very familiar one in the world of boiler engineering, we think is too good to be lost. He was engaged on one occasion in making a thorough inspection of a Lancashire boiler, and was passing up one of the side flues, pushing in front of him his flaming oil-lamp, when he suddenly received a terrific blow on the head, which for a moment almost stunned him, and, to use his own expression, caused him to "see more stars at once than ever he noticed in the heavens." The blow was accompanied by a cry and a number of choice expletives, and he could not for some time think whether one of the boilers working along side had burst or the wall had come down upon his tingling pate. A series of imprecations, certainly loud if not deep, a little further up the flue soon brought him to his senses and to an understanding of what had occurred. One of the sweeps who had been engaged cleaning the flues, either through having imbibed an excess of "allowance" or being tired out and having found the position very warm and comfortable, had dropped asleep in the side flue, and had been very sharply awakened by our inspector's light touching his bare leg. These men often work with little of anything on in the shape of clothing beyond a few old rags, and generally wear their clogs while cleaning the flues. The rude awakening of the sweep by the sudden pain caused by the contact of the inspector's lamp with his bare skin caused him to kick out savagely, and his iron-shod clog coming in contact with the inspector's cranium had caused him to see the astronomical phenomenon above referred to. Whether the sweep, who was so rudely awakened from his nap, or the inspector, who for some time could not persuade himself whether or not the boiler had fallen upon him, was the more surprised of the two it would be difficult to say. We make a present of the above true story to Professor Tyndall as being a remarkable example of heat being "made of motion," as the heat of the inspector's lamp unquestionably set the sweep's leg in violent motion, and produced a "bump" which would have been alarming to any phrenologist examining it without being made acquainted with the cause.—*The Mechanical World.*

WHEAT GROWING.

The very low prices obtainable for wheat have naturally somewhat disheartened the growers, and they are mooted the question whether they can afford to raise wheat or will not gain by devoting their lands to other crops; and the Pennsylvania school of protectionists is helping them agitate this question and openly preaches that there is an excessive production of wheat, advising the farmers to produce something else.

This is bad advice. One year's crop will not supply two years' consumption, so that the country may be said to be always within easy distance of starvation. Fortunately, the distribution of wheat is so general that a total failure of the crop can hardly occur; but none the less can the production be

seriously lessened by natural causes. The demand is continually increasing, and if the supply is now excessive this is a temporary condition. To deliberately curtail the cultivation of wheat would, if carried to even a moderate extent, only invite disaster, strange as this may appear in a country where agriculture is so fruitful.

lish journals are full of a discussion on the question, "Can we grow wheat?" Duties can only afford a temporary protection; they will not increase the fertility of the soil. France now levies duties on wheat so high that she is only surpassed by Turkey, Portugal and Spain. Prince Bismarck proposes an increased duty in order to make farming

THE WHEEL WORK OF MILLS.

Mistaken attempts at economy have often prompted the use of wheels of too small diameter. This is an evil which ought carefully to be avoided. Knowing the pressure on the teeth, we cannot with propriety reduce the diameter of the wheel below a certain measure.

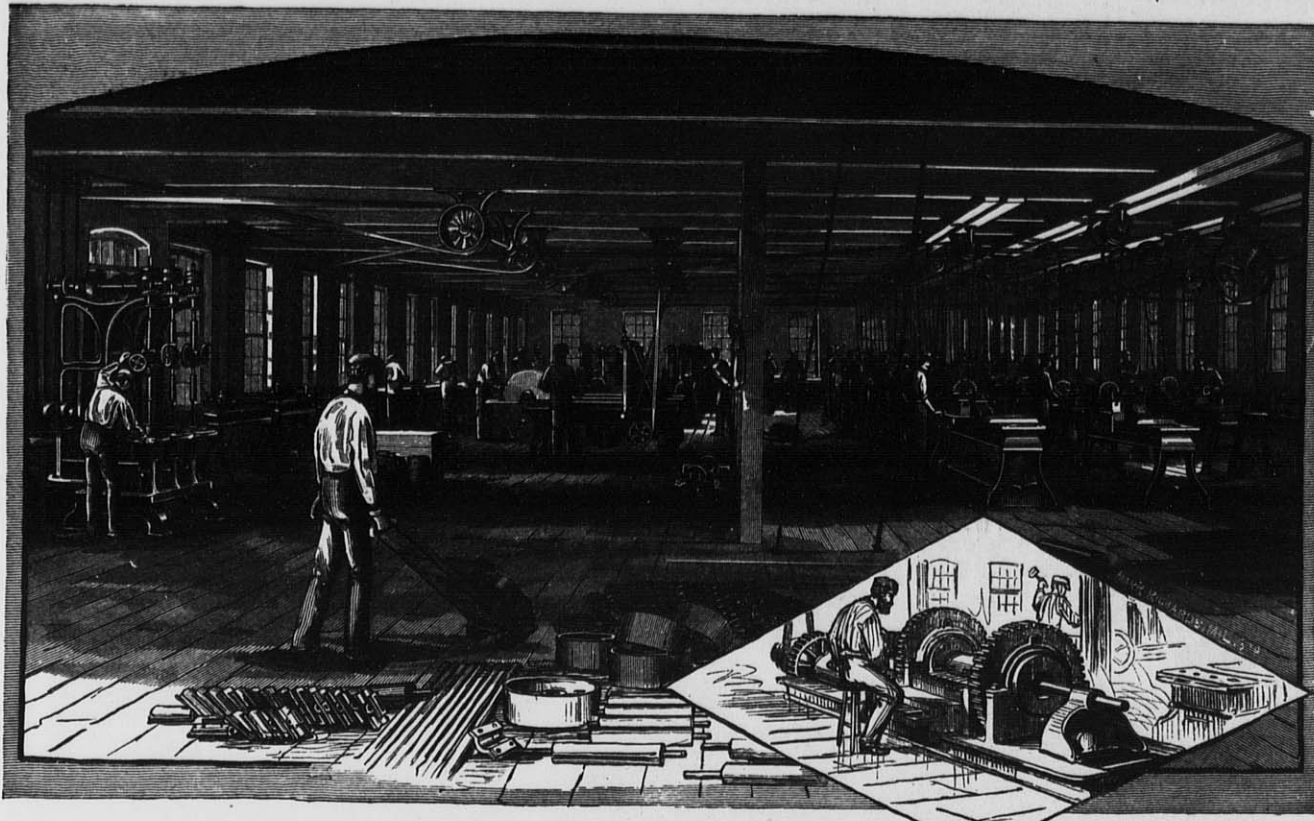
Suppose, for instance, a water wheel of twenty horse-power, moving at the pitch line with a velocity of three and one-half feet per second. It is known that a pinion of four feet diameter might work into it without impropriety; but we also know that it would be exceedingly improper to substitute a pinion of only one foot diameter, although the pressure and velocity at the pitch lines, in both cases, would be, in a certain sense, the same. In the case of the small pinion, however, a much greater stress would be thrown on the journeys (or journals) of the shaft. Not, indeed, on account of torsion or twist, but on account of transverse strain, arising as well from greater direct pressure as from the tendency which the oblique action of the teeth, particularly when somewhat worn, would have to produce great friction, and to force the pinion from the wheel, and make it bear harder on the journals. The small pinion is also evidently liable to wear much faster, on account of the more frequent recurrence of the friction of each particular tooth.

That these observations are not without foundation, is known to millwrights of experience. They have found a great saving of power by altering corn mills, for example, from the old plan of using only one wheel and pinion to the method of bringing up the motion by means of more wheels and pinions of larger diameters and finer pitches. The increase of power has often, by these means, been nearly doubled, while the tear and wear have been much lessened; although it is evident the machinery thus altered was more complex.

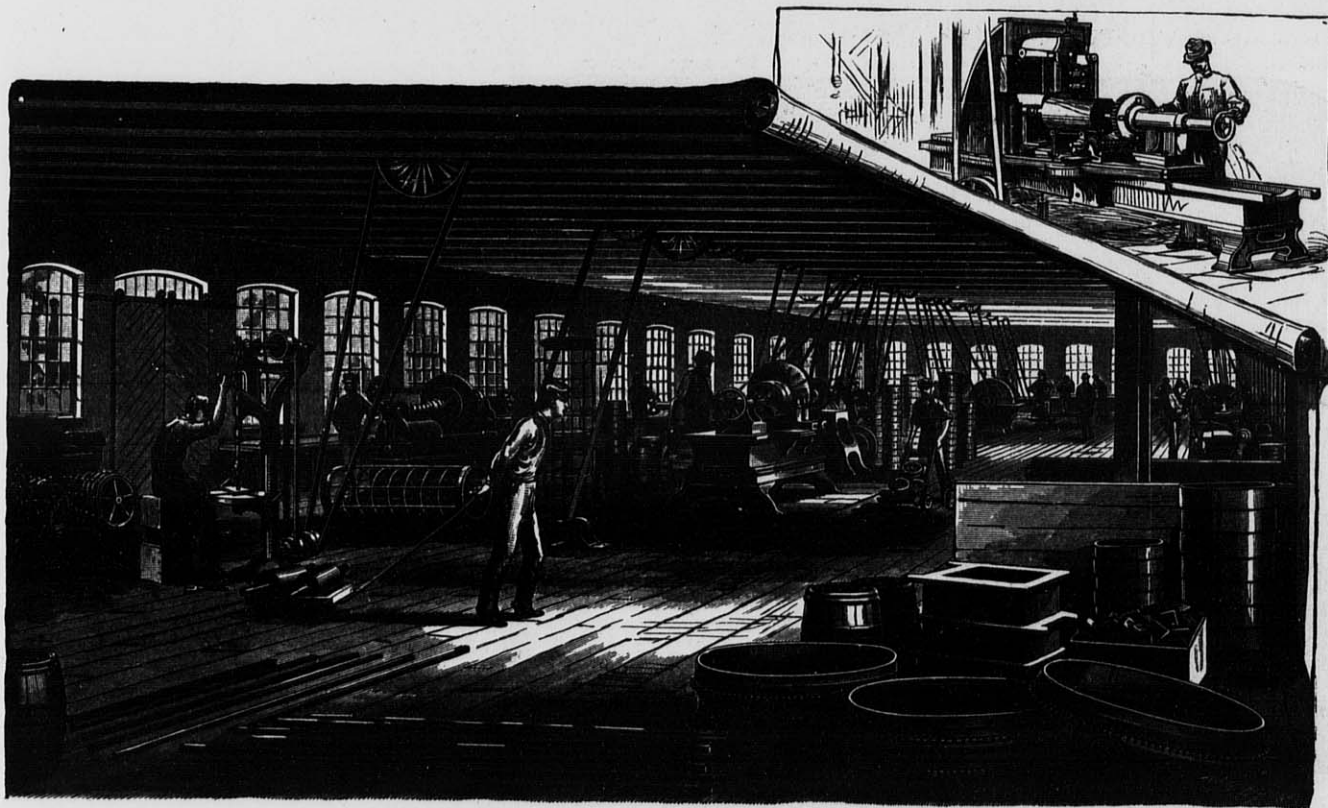
The due consideration of the proper communication of the original power is of great importance for the construction of mills on the best principles. It may easily be seen that in many cases a very great portion of the original power is expended before any force is actually applied to the work intended to be performed.

Notwithstanding the modern improvements in this department, there is still much to be done. In the usual modes of constructing mills, due attention is seldom given to scientific principles. It is certain, however, that were these principles better attended to, much power that is unnecessarily expended would be saved. In general, this might be in a great measure obtained by bringing on the desired motions in a gradual manner, beginning with the first very slowly, and gradually bringing up the desired motions by wheels and pinions of larger diameters. This is a subject which should be well considered before we can determine in any particular case what ought to be the pitch of the wheels.

In the case above alluded to, where the supposition is a pinion of four feet diameter, or of one foot diameter, it is obvious that the same pitch for both would not be prudent; that for the small pinion, ought to be much less than that which might be allowed in the case of the larger pinion. It is also equally obvious that the breadth of the teeth, in the case



E. P. ALLIS & CO.'S ROLLER SHOPS.—SECOND FLOOR.



E. P. ALLIS & CO.'S ROLLER SHOPS.—THIRD FLOOR.



E. P. ALLIS & CO.'S ROLLER SHOPS.—FINISHING FLOOR AND WARE ROOM.

Not only is the demand continually increasing in this country, but Europe will want each year a larger supply for her population. As it is, England, France, Germany and Spain cannot under natural conditions grow wheat in competition with us, and while some of these nations are seeking to equalize conditions by tariff duties the Eng-

more profitable, and so check the tide of emigration which he dreads so much. These expedients cannot keep back the inevitable, and American wheat will have an ever increasing market, and one which natural conditions—like climate, droughts, etc.—may give to it absolutely. No; the growing of wheat should be encouraged, and not discouraged.

of the small pinion, ought to be much greater than that in the case of the larger pinion.

It is evident, however, that although great advantage may often be derived from a fine pitch, there is a limit in this respect, as also with regard to the breadth.—*Buchanan on Mill-Work.*

SWEET POTATO FLOUR.

A patent has been issued for a process of treating sweet potatoes for making flour, which is described as follows:

The object of the invention is to produce a wholesome and nutritious article of diet from the sweet potato, one that will not be liable to become frozen or decayed, and which shall embody all the valuable portions of the potato, essentially the starch and saccharine matter.

In southern portions of the temperate zones the sweet potato grows plentifully with but little cultivation, and is consequently in such localities cheap and common. In other portions of the country—that is to say, in localities where different temperatures and different degrees of moisture of the air obtain—the potato is a luxury, and when in the natural state difficult to get, except at exorbitant prices, owing to its liability to rot and freeze. This invention designs to so treat the potato that the starchy and saccharine matters, with a quantity of the glutinous portion, may be obtained and readily transported to any portion of the world as a staple product, similar to flour, and it being well known that chemical changes which accrue to the liquid portion of the potato in climates other than where it grew destroy its natural flavor, an essential feature of the process is to quickly evaporate such liquids while the potato is in a healthy condition, and reduce it to a flour or meal which will retain the natural flavor of the esculent. The product obtained according to the invention may be made into puddings, pies, cakes, custards and the like, and is preferably prepared with salt, etc., before being placed upon the market. Being in the form of a flour or meal, it will keep for a long time in the manner of corn-starch or ordinary flour. The sweet potato is naturally an enlargement of a root, and has longitudinal fibres of a woody nature. The skin and the adjacent portion is largely composed of gluten. These portions are separated from the starchy and saccharine portions, according to the invention, and may form such another quality of diet material upon being properly ground.

In carrying out the invention, sweet potatoes are taken in quantity and subjected to heat, preferably in moving ovens, so as to obtain an evenness of the baking process. This congeals the gluten near the skin and causes the skin to shrivel and separate itself from the main portion. The skin is then removed, in any preferable manner or by any preferred machinery, and the main portions are again subjected to heat to evaporate the moisture. This being done and all the bulbs crushed, the longitudinal fibres will be in a condition to be separated by screening or otherwise, when the starchy and saccharine portions are ready to be ground, crushed, or otherwise formed into a flour, treated with salt and yeast powder, and packed for the market, having been dispossessed of all moisture, but retaining the desirable natural elements. The steps which are the gist of this process are, first, baking to separate the skin, then drying or evaporating, then separating the fibre, then preparing into flour.

A LOGGER'S STORY.

"For a young man I have done pretty hard scraping in the Rockies and mining regions of New Mexico and Arizona, but a few days ago I had the worst scare in my life in the lumber districts of northern Michigan." The speaker was a young man of some 27 years, dressed in rough-and-ready style and wearing a frizzly tow beard. He shifted the position of his broad shoulders as he lounged back in an easy chair in the Sherman house office, puffing his cigar vigorously, and then continued: "It was one of those bitter cold days we've just been having, and I got up at three o'clock to rouse the men and get the sprinkler out. The air seemed full of blue steel and cut to the marrow like a razor. One of the teamsters got scared out and played off sick, so I had to take his place. When we had got a good load I took the reins and sat down on the butts of the logs, leaving the two loggers on behind. Of course, about twenty feet hung off the last bob. The road was a sheet of ice, for the sprinkler ran over it every morning, and the horses were sharp-shod, so we slid along smoothly till we got to the slide—a pretty steep incline ending in a turn which was mighty sharp for a road sixty feet wide. As soon as we started down my hair began to stand on end, for the horses galloped like fury to keep ahead of the bobs which were slewing all over the road. I got so paralyzed and nervous that when we approached the turn I reined in too suddenly. I felt the front bobs jump one way and the

back bobs the other. The hind ends of the logs whistled through the air like willow switches, and I heard the loggers yell: "For God's sake, — — —." The next thing was a loud snap! snap! snap!—like three tremendous paper-crackers—as the big log-chains broke like so many cotton threads. Did you ever use a switch-sling? Whirl it round and round your head, you know, till a sudden twist sends the apple off the end and spinning into the air? Well, that is the way I felt, and that is just what I thought of, as I was shot off into the air, over, and over, and over, till I stuck in a snowdrift some one hundred or more feet from the road. When I struggled back through the snow I found the horses trying to kick loose from the few bits of harness that dangled about them, the bobs tangled around the trunk of a small pine tree, and the logs scattered to the four winds. One logger crawled back to the road with a fractured leg, and the other soon followed with a dislocated shoulder. One had struck a tree and the second had landed against a stump. They afterward told me in camp that these things were not at all unusual, and, as I had some pretty heavy bruises myself, I concluded that I was not made to boss a lumber camp. So I was driven to town the next day to telegraph the management that the head teamster was filling my place, and that I was on my way to Chicago; and you bet your life I am glad I did it.—*Chicago Tribune.*

THE REBATE ON JUTE SACKS.

The *Chicago Tribune's* Washington special summarized an amendatory circular recently issued by the treasury department, which has the effect to render the process for securing the rebate on jute sacks so expensive that practically no benefit will remain from the rebate. All flour that is exported is shipped in jute sacks made from burlap manufactured in Scotland. The burlap is imported to the United States in the whole cloth, the required duty being paid by the importers. The cloth is afterward manufactured into bags, which are sold to millers and other manufacturers. A provision of the custom laws gives a rebate of the duty to shippers exporting their goods in the jute bags. This rebate on the average flour bag amounts to a trifle over one cent. When it is known that the yearly shipment of flour from Minneapolis to foreign countries aggregated about 3,000,000 sacks it will be seen that the loss of this rebate is of much consequence to the millers of this city. A few months ago the payment of rebate was suspended, while investigations were being made into some alleged frauds, but on January 5, a circular was issued that seemed to settle the difficulty. It was discovered, however, that the regulations were loosely drawn and that there were still opportunities for steals. As a consequence the plan for securing the rebates has been made much more complicated and now costs almost as much as the amount of the rebate, as it provides that the flour must be emptied from the bags in order that the appraiser may examine them. Should this condition of things be maintained, it is likely to affect the shipment of flour to Europe. It frequently happens that foreign shipments are made on which the net profits are only 2 and 4 cents per sack. When the business is figured to such a fine point, the loss of one cent per sack has a decided influence. Although the millers obtain a much greater profit on the bulk of their exports, they nevertheless would feel the loss of the jute rebate and will make endeavors to have the old order of things restored. The National Millers' Association has taken hold of the matter and will see what can be done.

THE CAUSE OF THE EGYPTIAN WAR.

The origin of the present Egyptian war dates from the reign of Ismail Pasha, a shrewd and unscrupulous intriguer, who accumulated a fortune from the exportation of cotton during our civil war. This money he lavished on Turkish officials till he found himself a favorite with the Sultan and endowed with almost regal power. He had been educated in Paris, and his ambition was to Europeanize Egypt and make Cairo the Paris of the East. To accomplish this purpose, he borrowed money by the millions at the most exorbitant rates of interest. This money was not devoted to national purposes, but was expended in display, in bribing favorite friends of the Sultan in Constantinople, in covering Egypt with palaces, and stocking harems. The fellahs, or native population, were heavily taxed to pay the interest on these debts, from which they derived no benefit, and which they had no share in contracting, and when the money could not be raised the Khedive's tax gatherers used to surround the villages, catch the inhabitants, and ply the bastinado till the taxes were paid.

At last things came to such a pass that Ismail could borrow no more money, and the

fellahs could pay no more taxes. In the interest of the bondholders, mostly English and French, Ismail was deposed, and his son, the present ruler, made Khedive. To secure payment on the bonds, a joint control was established over Egyptian finances by England and France. Sir Rivers Wilson, the English representative, dismissed all the native Egyptian officials and flooded the country with a swarm of hungry English officials, who knew nothing about Egypt save that it owed them exorbitant salaries. A spirit of disaffection soon manifested itself, and a national party was formed, headed by Arabi Pasha, an officer of the army. A brawl occurred in the streets of Alexandria, and measures were taken by the English government to suppress the national party now in incipient rebellion. France refused to co-operate with England, and the latter resolved to act alone. Admiral Seymour bombarded Alexandria, and Wolseley, passing through the Suez canal, met the Egyptian army at Tel el Kieber, defeated it, and captured Arabi Pasha, who was banished to Ceylon.

Meantime, the Arabs of the Soudan—an immense tract of the country, comprising Kordofan, Nubia, Senaar and Toka on the east, and some Nile districts further south—under the leadership of El Mahdi, the False Prophet, had risen in rebellion. England having undertaken to restore order in Egypt, now found herself compelled to suppress the Mahdi's rebellion. The Arabs, on the other hand, were instigated to resistance under the impulses of patriotism and religious fanaticism.

IRON VERSUS WOODEN SHIPS FOR GRAIN.

Mr. Henry Taylor who had personal experience in ocean shipping from 1866 to 1879, replied in the *Chicago Tribune* to an article of Mr. Bates, giving the preference to wooden vessels, as compared with iron, as grain carriers. The writer says that the value in the market of cargoes in A 1 all-iron vessels is 25 cents per quarter over the same in all-wood. The great danger of damage in the latter is well known to the shippers of the Pacific Slope.

A first-class iron vessel, says Mr. Taylor, can, he thinks, be built on the Clyde for less than a wooden one of even tonnage, either on the Pacific or Atlantic Coasts. The iron ship would be classed as A 1 for twenty years; the wooden one would be so classed only for seven, in a few cases for ten or fourteen years; after these dates few would risk a cargo around the Horn. Iron ships make fully as good time, or a better average; while underwriters would not insure a grain cargo in a wooden vessel of seven years at as low a rate as in one of iron of double that age.

NONSENSE.

SAVING GRACE IN MONTANA.—The other day a St. Paul minister answered a ring at his door bell and found there a brawny frontiersman, wearing a buckskin suit and a white Mexican sombrero. He was invited into the study, and after seating himself said:

"Pardner, I'm trying to case up a sky pilot to ladle out the savin' grace to the boys in Rawson's Gulch, Montanny. The bar-keeper down to the Merchant's Hotel told me you slung about the heftiest jaw in the holy line in St. Paul, an' I thought I'd drop in an' size you up."

"If I understand you, sir, you desire to secure a pastor for your church out there."

"That's our little game exactly pard' an' the boys constitooted me an executive committee to come in 'yar an' run one down. We want the most heavenly mouth-piece in the country, an' we've got the dust to put up fur 'im."

"Who was your last pastor?" asked the minister.

"Never had one. You see, the boys out thar never stood in much on the religious racket, but we're agoin' to bank big on savin' grace in the future, an' play'er clear up to the limit. Glad tidin's o' great joy's the winnin' card at Rawson's from henceforth an' forevermore, pardner, an' don't you forget it."

"You say you never had a minister? What, then, has caused this sudden awakening—this new desire for light?"

"I'll tell you, pard, its just like this. Thar's a big rivalry atween Rawson Gulch an' Rocky Bar, about five miles further up the creek. The two camps hev bin fightin' fur the lead fur a year, an' we've allers downed 'em on every p'int. Las' week one o' the boys went up thar' an' cum back an' reported that the Rocky fellahs had a preacher an' that salvation were a runnin' loose in the camp an' amazin' grace war growin' on the bushes. He said he heard the holy bloke preachify himself an' that he dished up the livin' word like a ten times winner. Wal, that sort o' paralyzed us, so to speak, an' we called a meetin' to see what war' to be done.

At fust it war' perposed to go up thar of a Sunday an' clean out the congregation an' hang the preacher, but we wa'n't quite sure of the fighting abilities o' the meek and lowly worshippers up thar an' mout get licked, so it was finally decided to tree a Gospel sharp an that's what I'm yar fur now. The boys 'll treat you white, pardner, an' if you can do up the Rocky Bar capper in the heavenly game an' put it all over 'im a soundin' the glad tidin's, yer fortune's made. I like the cut o' yer jib, pard, an' I b'lieve, you'd shout salvation at us in a way that d make the Rocky Bar galoots pow'ful weary."

"What denomination is the majority out there?"

"None at all. You kin play yer cards ter suit yerself an' come at us jest as you think the hand orter be played. But say, pard, I reckon I wouldn't ever give the boys a Baptist lay out to play up to."

"Why not?"

"Wal, yer see, we aint much stuck on water out thar only from a business pint o' view. Water's all good enough an' mighty valuable fur washin' out dust, but aside from that 'tain't much account. Still, if that's yer lay, pardner, come right along. We'll take turns an' keep you baptizin' half the time, jest to down them Rocky fellahs. Thar's a gang o' twenty Chinamen workin' a placer claim below us, an' we kin run them up an' let you souse the hull mob two or three times a week, if it 'll make the Rocky crowd think the good work's a movin' right along."

The minister was forced to decline the call, and the old man said as he rose to go:

"All right, pardner; no harm done. I'll keep up the hunt till I tree my man. We'll down Rocky Bar on salvation if it's in the pins. Good day, sir, an' if you ever come our way stop off an' we 'll treat you squar." Good bye.—*St. Paul Paper.*

"Good evening, Tommy. Is your sister Clarissa at home?" "Yes, sir, she's in the kitchen popping corn for you." "Popping corn for me? Why, how very thoughtful! I like pop corn very much." "Yes, sir; she said she was going to put a pan of pop corn under your nose, and if you didn't take the hint she'd give you the shake."

A 12-year-old boy entered a news-stand, threw down 15 cents, and said: "Gimme 'The One-eyed Demon of the Ditches,' 'Crimson-Handed Bill, or the King of the Highway-men, and Sal. Slumpkins, the Queen of the Shoplifters of the Half-Dime Series.' And yet an English review once sneeringly said: "Who reads an American book?"

DAUGHTER—Say, ma, how much of a fortune have you got? Mamma—My child, that isn't a subject for little people like you to concern yourself about. Daughter—Oh, yes, ma, it is. There's a girl in my class that's only seven, and she was telling me that she would be worth \$50,000 when her pa and ma kicked the bucket.

SOME weeks ago, when corn was at its lowest notch, a farmer brought a load to town and inquired its price. "Fifteen cents," was the reply. The farmer paused and gazed on the ground thoughtfully. At last he said: "I wonder if there ain't any place in town where I could trade that load of corn for a load of cobs. I'm about out of wood."

THE OLD MAN. An Eastern paper tells the following story of a Western merchant who wanted to do some sightseeing and buy his fall stock at the same time. He entered a dry-goods house on Broadway, and accosted the first person he met with "Are you the proprietor?" "Not exactly the proprietor," was the reply. "At present I'm cutting my cards for an interest next year by organizing noon prayer-meetings in the basement, but am now only shipping clerk." The stranger passed on to a very important personage with a diamond pin, and asked, "Are you the head of the house?" "Well, no, I can't say that I am at present, but I have hopes of being soon. I am only one of the travelers now, but I'm going for a \$500 pew in an up-town church, and that will mean a quarter interest here in less than six months." The next man had his feet up, his hat back, and a twenty-cent cigar in his mouth, and he looked so solid that the stranger said, "You must run the establishment?"—"Me? Well, I may run it very soon. At present I am the book-keeper, but I intend to get into the church choir with the old man's darling, and soon I'll be an equal partner here."

The stranger was determined not to make another mistake; he walked around until he found a man with his coat off and busy marking goods, and he said to him, "The porters are kept pretty busy here, I see."—"Yes," was the brief reply.—"I suppose you are preparing to invest in a gospel hymn-book and sing the old man out of an eighth interest, aren't you?" "Well, no, not exactly," was the quiet reply. "I am the old man."—"Durn my buttons," said the stranger, and then he skipped.

ITEMS OF INTEREST.

THE LARGEST RAILROAD STATION IN THE WORLD.—The largest railroad station in the world is that belonging to the Northwestern Railroad Company, at Birmingham, England, completed and fully opened for passenger traffic on the 9th ult. One thousand men have been employed in its construction for 2½ years. It has cost in construction \$5,000,000 and covers 12 acres of ground. There are tunnels at either end and through them 400 trains pass each day. The length of the platforms exceed a mile and a half. There are five signals-boxes for working the traffic, each of which contains 144 point and signal levers and is operated by seven men; six locomotives do the switching in the station. The whole is roofed in with arched-glass roofing upon the Paxton principle.

THE "LOCOPHONE."—The latest mechanical contrivance for dispatch and safety in the running of railway trains is the "locophone," which has been constructed by Frank B. Taylor and is now being tested on the New York & New Haven Road. The apparatus resembles the telephone, and is designed to place each engineer on the road, while the trains are moving at the highest speed, in instantaneous speaking communication with the superintendent or train dispatchers. By its means all the engineers on the road receive the message at the same moment. The circuit is completed through the rails.

BORAX AS AN INTERNAL DISINFECTANT.—M. E. de Cyon, following Dumas, maintains that borax, unlike other antiseptics, is perfectly harmless, even in doses of as much as 15 grammes in the course of a day. Besides the importance of this fact in regard to public alimentation, the author considers it has a great medical interest. He believes borax taken internally in times of epidemics would prove of great hygienic value. In 1879 when the plague broke out in Russia he went to St. Petersburg and persuaded the Imperial Medical Council to recommend the use of this substance in the affected districts. This recommendation was made in a meeting of the Council on February 19, 1879, under the presidency of Dr. Pelican. The end of the epidemic, however, prevented the proof of the value of borax on that occasion. Since then M. de Cyon asserts that he has

had frequent opportunities of testing the medicinal virtue of borax. He urges its employment in the districts invaded by cholera, and asserts that the workmen in borax factories have always been remarkably preserved from attacks, even when they have been in the midst of the disease. Thus in Italy, during the violent epidemic of 1864-65, none of the workmen in the seven factories at Lardarello were attacked, although in a village only 3 kilometres distant a third of the whole population was swept away. M. de Cyon, recommends it to be taken in quantities of 5 to 6 grammes per day, and believes that it destroys the microbes not only in the intestinal canal, but also in the blood.—*Chemist and Druggist.*

THE Miller's Review of Philadelphia says:—The latest phase of milling journalism is rather a quaint one. The solicitor of advertisements travels in company with a man who wants to fit up his mill with every device known to the trade, both ancient and modern. When calling upon Smith, who makes a purifier, the handy friend speaks up and claims that a friend of his is using that very identical purifier and considers it the best in the world. The handy friend is looking around for an outfit, and after much persuasion was induced by the representative of the "Millers' Boomerang" to call and inspect the purifier in question. He is not quite ready to purchase, but in a few weeks will write to Smith and probably make a purchase. The next stopping-place brings this happy couple to the maker of a roller mill. The same nice little formula is gone through with. The next landing-place sets them down before the maker of a grain-cleaning machine, etc., etc. Smith and Jones and Williams are all highly edified at the courtesy of the representative of the "Boomerang." But they never receive any orders from the call. The kind-hearted publisher's representative is put down as one to whom favors in the advertising line should be shown, and he returns to headquarters with a wink in one eye and much prospective profit in the other.

BREAD FACTORIES IN GERMANY.—During the past year several bread factories have been erected in different German capitals; but at present it is, perhaps, too early to say with what success. The enterprise has nat-

urally excited an opposition from the bakers. Where the factories are conducted by millers, they have tried to secure the closing of their establishments by the public authorities, on the ground that the use of a mill as a bakery constituted an infringement of the bakers' patent. Failing to secure the assistance of the law, the Vienna bakers have collectively resolved to "boycott" any miller who makes and sells bread. The same action has been taken by the bakers of Berlin, who have also to face the competition of baker-millers. A large bread factory was recently established by a miller at Frankfort-on-the-Main, and it is said that the bakers of the locality are about to adopt the same measures of reprisal against this gentleman's mill and bakery which have been put into force at Berlin and Vienna.—*The Miller*, (London.)

AN AUGER TO BORE A SQUARE HOLE.—A Cleveland paper says that the first and only auger ever manufactured that will bore a square hole is now in the shops of the Cleveland Machine Company. This auger bores a two inch square hole, the size used in ordinary frame buildings and barns, but they can be made on the same principle to bore square holes of any size. Its application is ordinary and works on the same principle as round hole augers. Its end, instead of having a screw or a bit, has a cam motion which oscillates a cutter mounted on a steel rocking knife which cuts on both sides. In order to prevent the splitting of the wood the ends of the cutter are provided with small semi-circular saws which help in cutting out perfectly square corners. It is estimated that this new process will save the labor of three men who work with chisels, as one man can conveniently cut a two-inch mortice in the same length of time he can bore a round hole. The invention is the work of a Wooten man who has given the subject years of patient thought.

IN MEMORY OF COLONEL OTWAY WATSON.

From Columbus, O., *Times*, Feb. 19.

Colonel Otway Watson, brother of D. K. and James Watson, of this city, died at his home on Lexington avenue Thursday noon after an illness of five months. Deceased was aged forty-four years. He leaves a wife and two small daughters. Mr. Watson served in the war of the rebellion as Second Lieutenant of the One Hundred and Thirteenth O. V. I., and made a splendid military record. As a citizen of Columbus since 1874, (London,

Ohio, is his native place,) he was identified with some of our industrial interests, being prominently connected with the Revolving Scraper Company and President of the Case Manufacturing Company. The funeral was held yesterday afternoon.

The following very feeling tribute to his memory is from one of his army comrades:

Otway died in this city on the 19th day of February, 1885, aged forty-four years. This simple announcement carries with it sorrow to many hearts beside those of his own immediate family. It was the privilege of the writer to have served throughout the late war with him and the impression he first made was only strengthened and deepened by years of intimate association. Frank, open, manly, generous and brave, he won all hearts. He entered the military service as Second Lieutenant of Co. A. 113th Ohio regiment, was with the command in all its arduous services until the end of the war, being gradually promoted until he came home as the Lieutenant Colonel of his regiment. Tennyson's "In Memoriam" might well have been written for Colonel Watson. The evil influence of military life had no ill effect on him. His character at the end of his service was as pure and bright as the day it began. And so it had ever been with him in civil life. The changes of fortune he bore with the strength of a true man, and he filled every position he was called to occupy with the same ability, integrity and character. His friends will ever cherish his memory, fragrant with all that is purest, brightest and best.

COMRADE.

GUIDE TO GOGEBIC.—"Gogebic and Other Resorts in Northern Michigan and Wisconsin," is the title of a 40-page guide book to resorts on the line of the Milwaukee, Lake Shore and Western Railway, now ready for distribution. The General Passenger Agent has received advance requests for the book to the number of several hundred, and there is little doubt but that the edition of 30,000 will find a ready distribution. The book contains something like two dozen fine engravings, maps of the famous fishing and camping regions of the North, and an abundance of descriptive matter regarding the various resorts and more attractive points reached by the Milwaukee, Lake Shore & Western Road. In itself the publication is a very interesting and instructive one, but to persons desirous of visiting the North during the coming summer season, it is doubly desirable for information and reliable descriptions of the various points for fishing, hunting and camping.

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A Remarkable Coincidence.—While the new Furnace was in process of construction, the editors and publishers of Webster's Unabridged were engaged upon their new work which is as great an improvement upon all previous Dictionary productions, and just as valuable in its way as is the incredible fuel-economizer above alluded to. Webster's Practical is not only a new compilation by the leading Dictionary House of the world, but it embodies several new features which, for ordinary use, render it pre-eminent among dictionaries—not excepting even the Unabridged.

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The following paragraph is reproduced from Webster's Practical.

Book, book, n. A collection of sheets of paper, etc., bound together; a literary composition, written or printed; a subdivision of a literary work. (Mer.) A volume in which accounts are kept. —v. t. To record (books), account. To enter or register in a book. —Book'ish, a. Given to reading; more acquainted with books than with men. —Book'-bind'g, n. One who binds books. —bind'g, n. A place for binding, etc. —bind'g, n. Art or practice of, etc. —case, n. A case with shelves for holding books. (Bind.) A book-cover. —cov'er, n. (Bind.) A case for a book; a cover of cloth or other material prepared for casing a book. —keep'g, n. One who keeps accounts. —keep'g, n. Art of recording mercantile transactions and keeping accounts. —learn'g, n. Versed in books; ignorant of life. —learn'g, n. Learning acquired by reading. —esp. as opp. to practical knowledge. —mak'g, n. One who writes and publishes books; a compiler; a sporting man who makes a record of bets. —mak'g, n. The practice of, etc. compilation; systematized betting. —mark, n. Something placed in a book by which to find a particular place. —place, n. A label indicating ownership, place in a library, etc., usually on the inside of the cover of a book. —post, n. The post-office arrangement by which books are mailed. —sell'g, n. One who sells books. —shelf, n. A shelf to hold books. —shop, n. A place for selling books. —stand, n. A stand for selling books in the street. —stall, n. A support to hold books. —worm, n. A worm or mite that eats holes in books; one excessively addicted to study.

THE QUANTITY TEST.

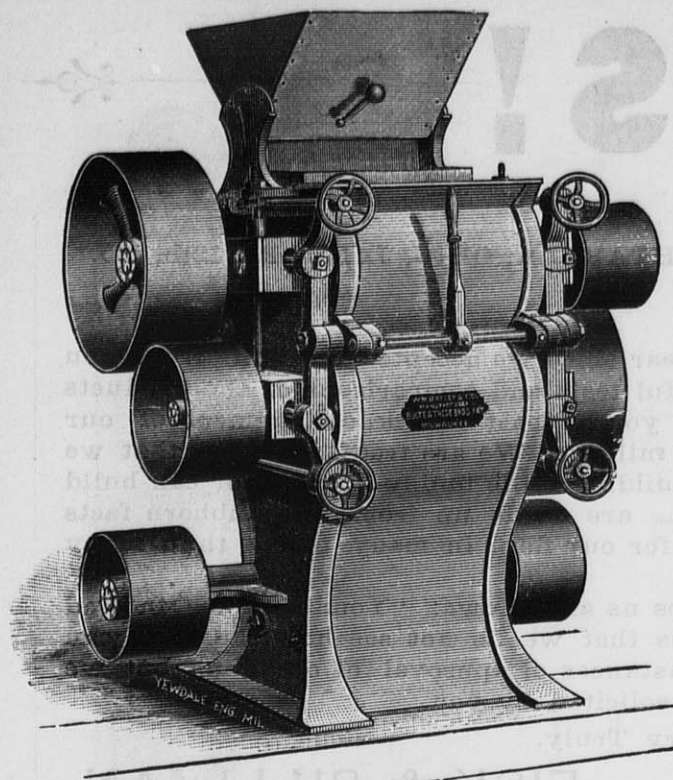
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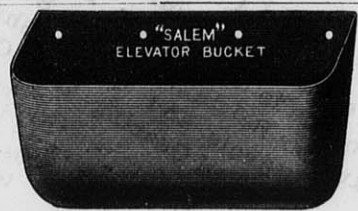
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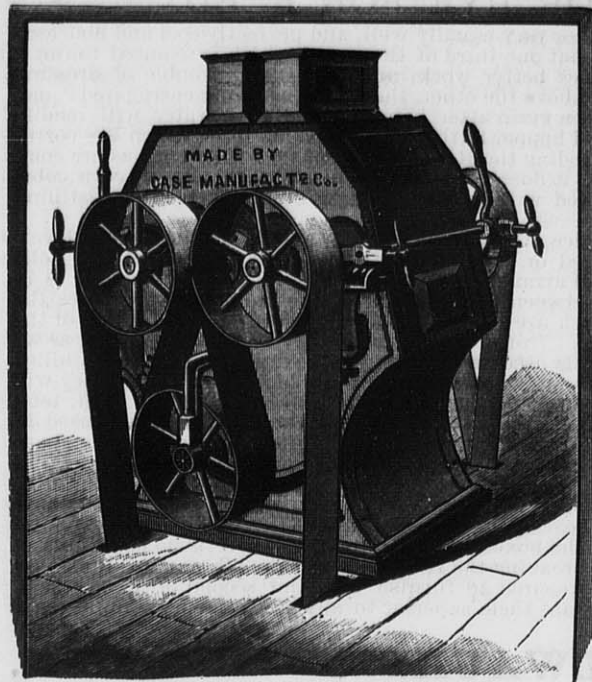
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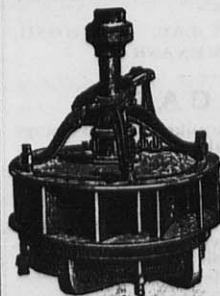
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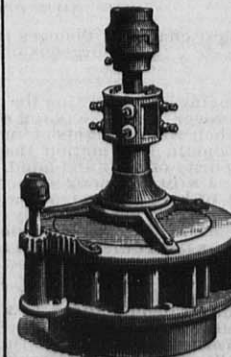
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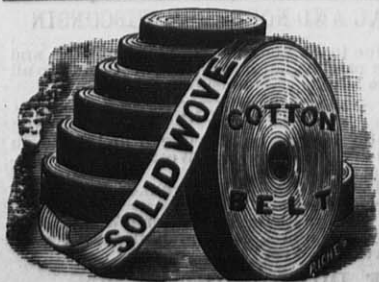
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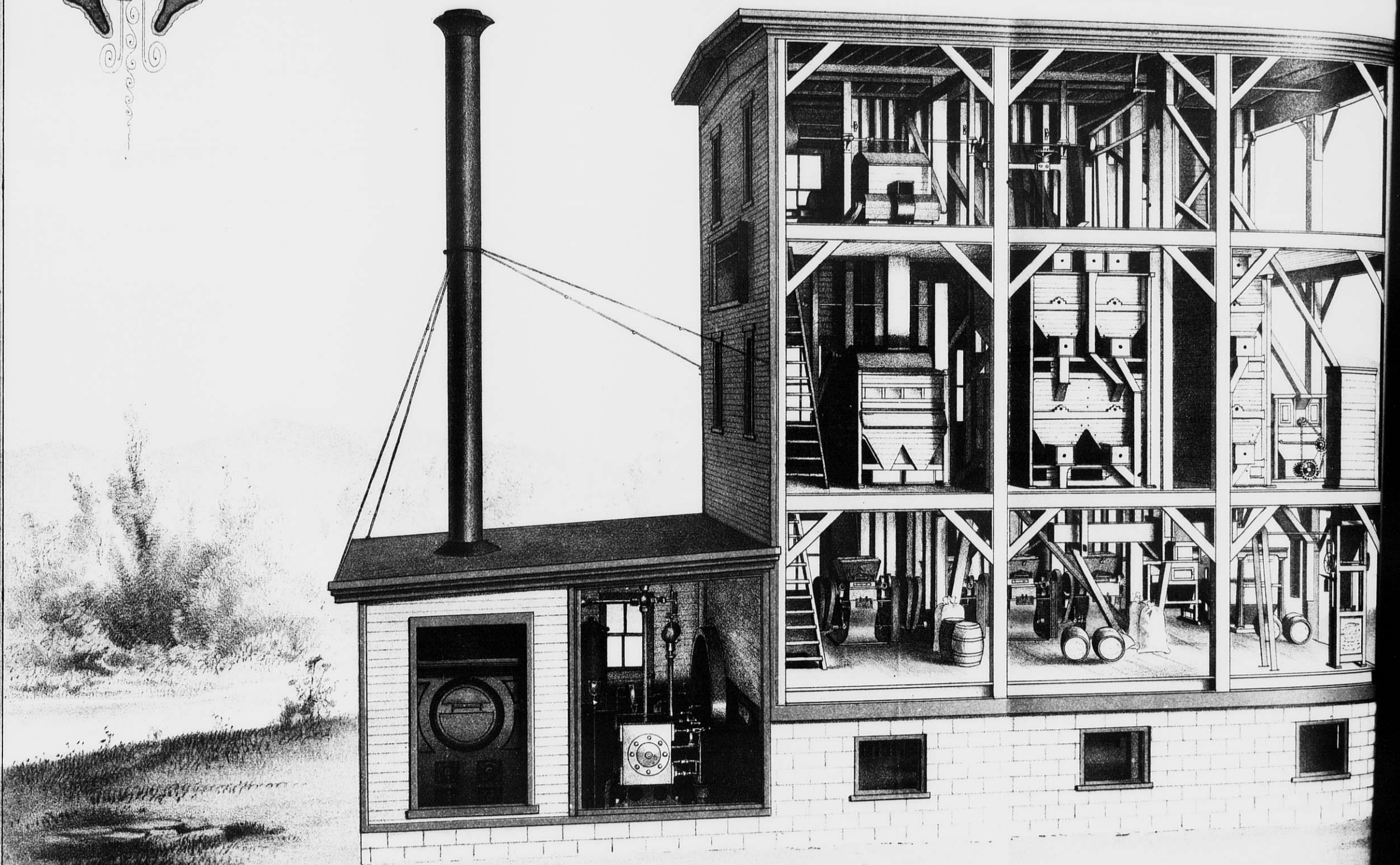
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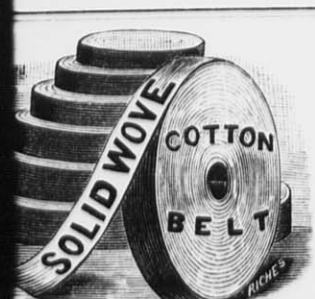
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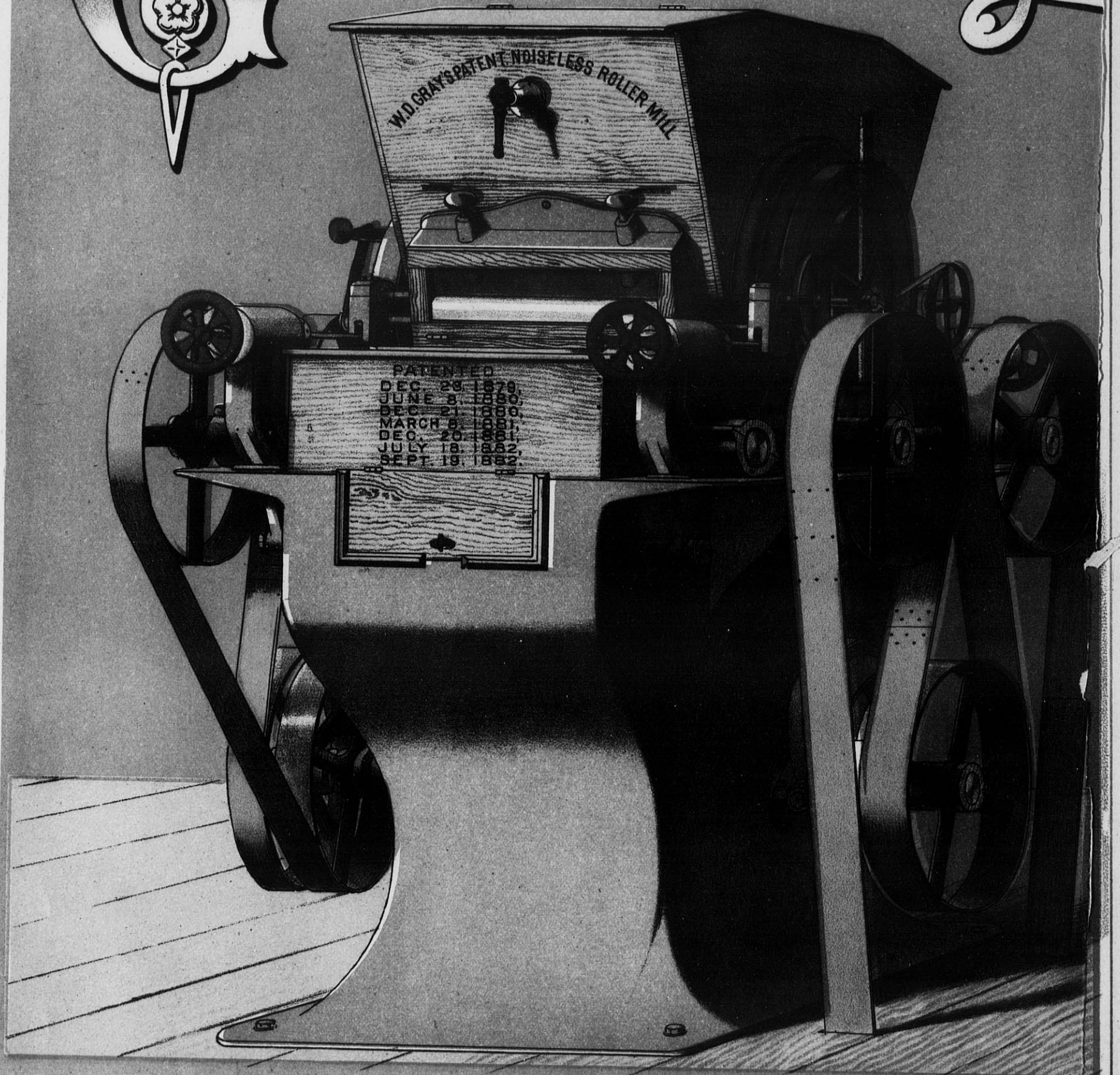
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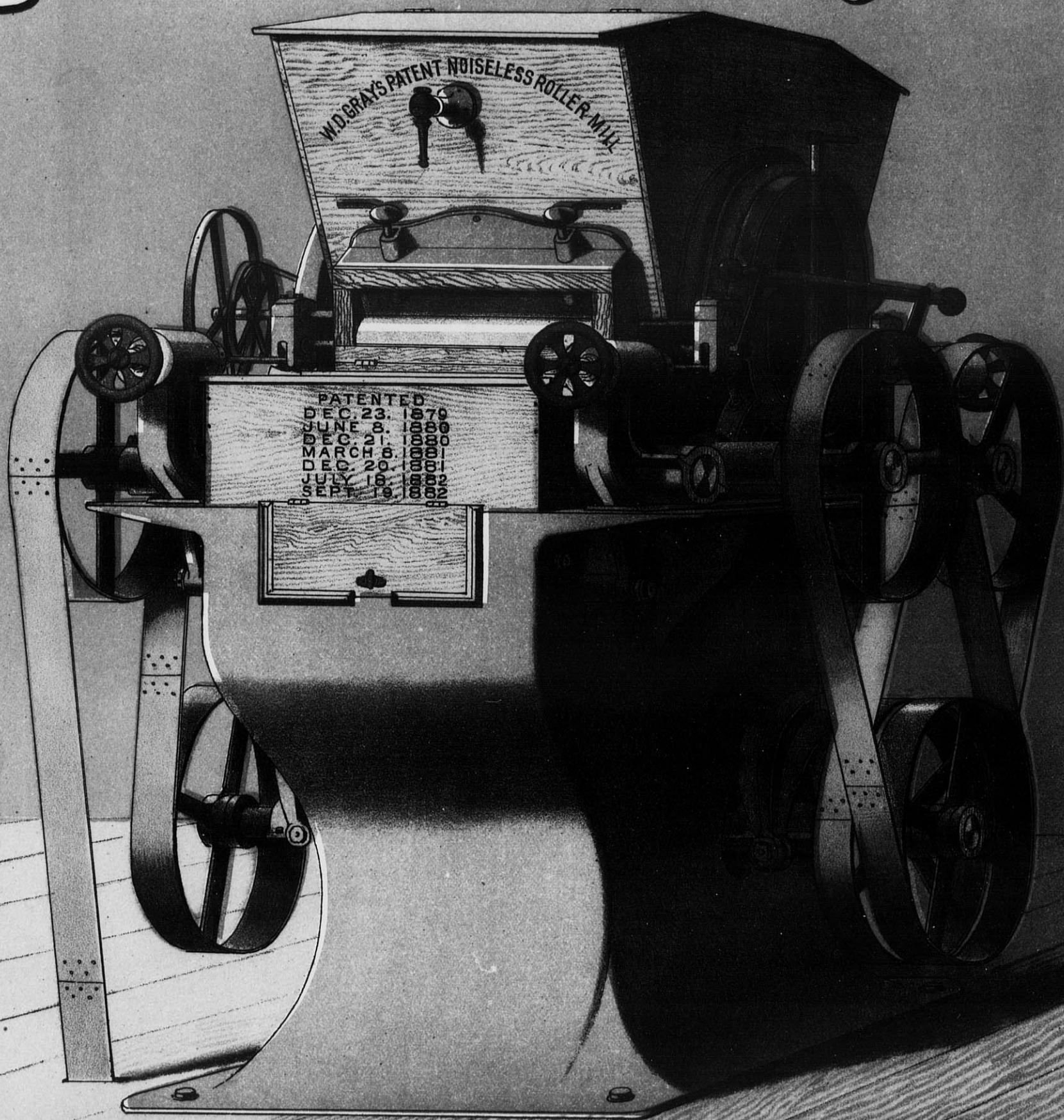


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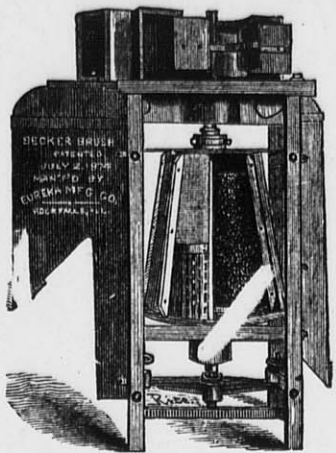
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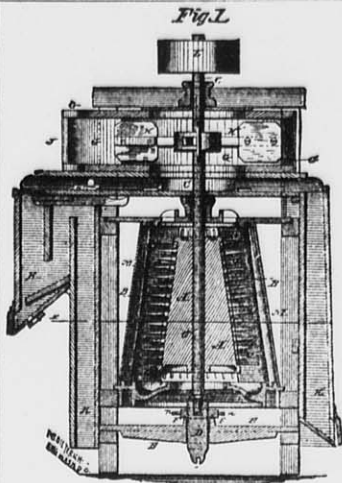
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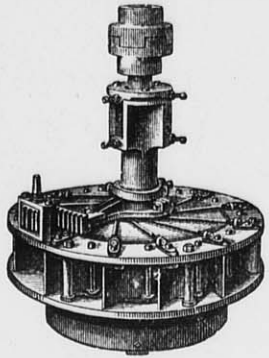
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It has been practically demonstrated that a scale one-sixteenth of an inch thick on a Boiler will require twenty per cent. more fuel than a clean Boiler, while a scale one-fourth of an inch thick will require sixty per cent. more fuel. The scale is a non-conductor of heat, and its formation in Boilers is general through the United States, more especially in the lime and alkali districts, and enough attention has not been paid to keeping Boilers free from accumulations. The cost of fuel for steam purposes is an important item, and any system for economy in this direction should receive due consideration. I am manufacturing a **BOILER PURGE** which I claim is the best made: First.—That it will remove the scale from any Boiler, and, by its continued use, will keep it from forming. Second.—That it will not injure the Boiler, Valves or Cylinder, nor foam the water, nor injure the water for drinking purposes. It is easy to use, being in a liquid form, it can be put directly into the Boiler, through the Safety Valve, Whistle Valve, or by Force Pump, or into the Tank. Third.—That by its use, from fifteen to forty per cent. can be saved in the cost of fuel, besides the expense of putting in new flues every one or two years.

We also refer with pleasure to the following who are using our **BOILER PURGE**: C. A. Pillsbury & Co., Minneapolis, Minn.; Bassett, Hunting & Co., McGregor, Iowa; Milwaukee, Lake Shore & Western Railway; The J. I. Case Threshing Machine Co., Racine, Wis.; Racine Hardware Mfg. Co., Racine, Wis.; Janesville Machine Co., Janesville, Wis.; and all Engineers running out of Milwaukee on C. M. & St. P. R.R.; Ladin & Rand Powder Co., Platteville, Wis.; Edw. P. Allis & Co., Milwaukee, Wis.; Wisconsin Central R. R. Co., Milwaukee, Wis.; Cramer, Aikens & Cramer, Milwaukee, Wis.; V. Blatz Brewery, Milwaukee, Wis.; Ph. Best Brewing Co., Milwaukee, Wis.; Northern Hospital of Insane, Winnebago, Wis.; and many others. Address, for prices, etc., **H. P. GRAVES,** 43 Virginia St., Milwaukee, Wis.

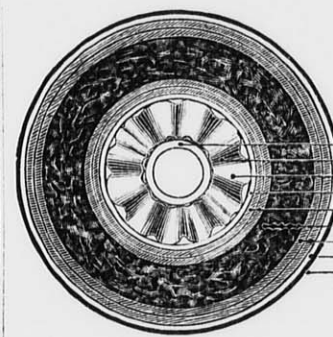
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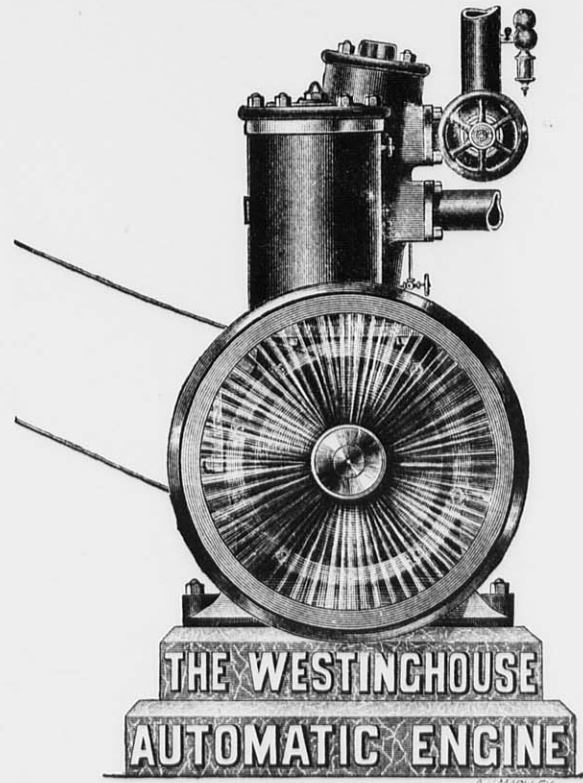
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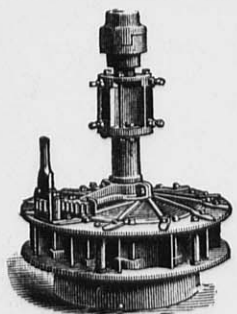
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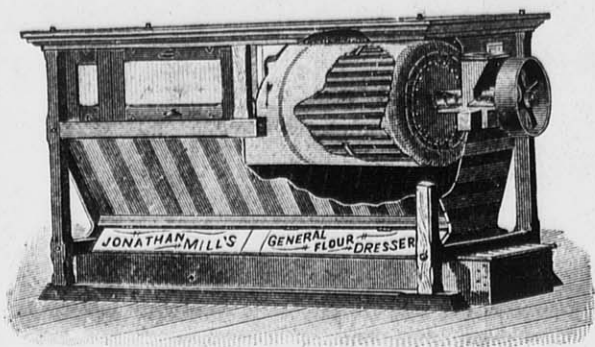
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MILWAUKEE, WIS., Nov. 29, 1884.

THE GEO. T. SMITH MIDDINGS PURIFIER CO.,

JACKSON, MICH.

GENTLEMEN:---Enclosed please find draft for two SMITH REELS. We have now run the Reels 60 days, and are well pleased with same, and must say that we are surprised by the amount of work they do. We are bolting at the rate of ten barrels per hour, which nearly all passes through upper Reel, and leaves but very little for the lower Reel to do.

Yours truly,

C. MANEGOLD & SON.

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BUILDERS FROM THE RAW MATERIAL OF

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Flour Bolts, Scalping Reels, Aspirators, Millstones, Portable Mills,

AND KEEP THE LARGEST STOCK OF

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140 BARREL MILL, MEMPHIS, TENN.

MEMPHIS, TENN., December 16th, 1884.

MESSRS. NORDYKE & MARMON CO., INDIANAPOLIS, IND.

Gentlemen:—Our mill, as planned and diagrammed by you, has been in steady operation for near one year past, and in proof that you have given us a successful job, we will simply say that in the face of a very dull trade, and while other mills were running on short time, we have been running full handed, in order to supply a genuine demand for our flours. We must also notice, that although you only promised us 100 bbls. capacity, we easily make 140 bbls. per day without deteriorating in grades of flours. We use No. 2 wheat, and consume 4 bushels and 28 pounds in making a barrel of flour. We make about 28 per cent. of very high patent, 68 of bakers, and 6 per cent. of low grade. Yet our mill is so constructed that we may vary the percentages to suit various markets.

We have always been victorious in the sharpest competition, and from the first day of starting we have kept the highest position among all roller mills, either located or represented in this region. Yours truly,

G. W. COWEN & CO.

OFFICE OF ANCHOR MILLING CO.,

ST. LOUIS, MO., Oct. 9, 1884.

NORDYKE & MARMON CO., INDIANAPOLIS, IND.

Gentlemen:—We have just been awarded all the first premiums on flour offered at the great Fair and Exposition. We made a clean sweep of them all, over all competitors, which includes all the mills in St. Louis, and all over the West, in fact the entries were open to the whole United States. We received 1st premium on Patent Flour, 1st premium on Straight Flour, 1st premium on Clear Flour. This embraces the entire list; the flour was made on your rolls, and you should make the fact widely known. Hurrah! for the N. & M. Co., and Anchor Milling Co. Yours very truly,

JOHN CRANGLE, V. Prest.

NORDYKE & MARMON CO.

500 BARREL MILL IN MISSOURI.

Read what an Old Miller who has thirty-four pairs of these Rolls in constant use says:

MESSRS. NORDYKE & MARMON CO., INDIANAPOLIS, IND.

Gentlemen:—In regard to the workings of our new mill erected by you, will say it is working fully up to and beyond our expectations. Our average work is fully 3 per cent. over your guarantee. Since starting our mill last July we have had no complaint of our flour from any market where sold. It gives universal satisfaction, and we have it scattered on the trade from Chicago to Galveston, Texas. Our yields are all that are attainable. We have tested it on both Spring and Winter wheats with satisfactory results on both varieties. Since the mill was turned over to us we have not changed a spout or a foot of cloth, nor have we found it required to make any changes. We have run as long as six days and nights without shutting steam off the engine, not having a "choke" or a belt to come off. The mill is entirely satisfactory to us, and for a fine job of workmanship, milling skill and perfection of system, we doubt if it is surpassed in the United States to-day. It is certainly a grand monument to the ability and skill of Col. C. A. Winn, your Milling Engineer and Designer. You may point to this mill with pride and say to competitors, "You may try to equal, but you will never beat it." Wishing you the success that honorable dealing deserves, I am,

Yours, etc.,

R. H. FAUCETT, Prest.

Letters on file in our office from a large number of small Roller Millers giving as favorable reports as above. A portion will be published as occasion demands.

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